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Why have caesarean sections become the dominant form of delivery for women accessing public hospitals in Bangladesh? A mixed-methods study in eight district hospitals of Bangladesh to understand factors influencing C-section consent and to explore opportunities for optimizing C-section rates.

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A mixed-methods study in eight district hospitals of Bangladesh to understand factors influencing C-section consent and to explore opportunities for optimizing C-section rates

Sathyanarayanan Doraiswamy

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Abstract

Introduction: Caesarean sections (C-sections), as with any other surgery, are not risk-free, have higher costs associated with them, and, potentially, can convert the usual physiological birthing process into one that is medically intensive, thus undermining the capability of women to deliver normally. In 2014, official C-section rates in Bangladesh touched 24%, which is an 8-fold increase from 2001 and well above the acceptable range of standards set by WHO at a population level.

Study aim: The research aims to study factors influencing decision-making for C-sections in public sector hospitals of Bangladesh with a focus on physician-patient communication in both emergency and elective C-section contexts.

Methodology: A multi-method approach of observation of physician-patient interactions in labour situations and in-depth narrative interviews of physicians and women who underwent primary emergency and elective C-sections as a complementary study design were used to provide a holistic picture in studying the decision-making process in caesarean section.

Results: By observing 306 labour situations and interviewing 16 physicians and 32 women who underwent emergency and elective C-sections, the study was able to establish that communication between the physician/other health care providers and the woman in the labour situation was both minimal in extent and limited in nature. The consent form has been rendered as an artefact in the process, making the form itself irrelevant in the background of what happens around it. The study finds that there are factors that prime the patient and the physician in favour of C-section, even before the clinical encounter, and there is very little evidence of any remodelling of these primed decisions during the encounter to change course.

Conclusions: The clinical encounter, and the poor communication that was found to happen during it, risks setting up a vicious cycle, exaggerating the existing priming into a dominant form of practice with the consequence of further increasing C-section rates in Bangladesh. The findings call for a set of carefully designed evidence-based behavioural interventions targeting the physicians, patients and the health system to better govern C-section decision-making in Bangladesh and hence to influence the C-section rate.

Chapter One – Thesis Summary

Bangladesh is seeing a rapid rise in the rate of Caesarean sections (C-sections). From a baseline value of 4% in 2004 (NIPORT, 2004), it climbed up to 33% in 2017-2018 (NIPORT, 2018). The recent Lancet series on caesarean section identifies Bangladesh as the country with the highest intra-institutional C-section rate (Boerma et al., 2018). The average cost of having a C-section in Bangladesh is USD 276 while the average cost is USD 45 for a normal vaginal delivery (Haider et al., 2018). A C-section is life-saving in obstetric complications, but the risks associated with C-sections, particularly in those performed without a medical indication, are significantly higher in low-resource settings (Litorp et al., 2013; Mola, 2017; Sandall et al., 2018).

Given the increasing rate of C-sections in the country, their associated risks when not medically indicated and the public health costs associated with them, they are being recognised as a serious public health issue. Significant national interest has led to trying to understand the drivers of the high rates to be able to design policies around them. The physician community globally, including in countries like Bangladesh, claims the growing maternal requests for caesarean sections is the decisive factor driving the decision-making process (McCourt et al., 2007; Mazzoni et al., 2011); on the other hand, women and families claim it is the physicians who make the call on caesarean sections (Kingdon, Downe and Betran, 2018).

Available evidence from the global literature suggests that the reasons for the increase in C-sections could vary from country to country (Sakala, 1993) and an interplay of physician, patient and health system factors is usually behind this increase (Betran et al., 2018). 2015, the year in which the study's idea was conceived, was a landmark year both from global and Bangladesh perspectives. While global evidence kept piling on the increasing C-section rates, the Lancet series in 2018 was able to confirm that the C-section rates nearly doubled between 2000 and 2015. WHO (2015) came out with its landmark statement linking optimum C-section rates, medical necessity and mortality reduction and also calling for a standardized internationally accepted classification system to monitor and compare caesarean section rates in a consistent and action-oriented manner. 2015 was also an important time in Bangladesh as the 4th health sector wide plan was being designed. The researcher was involved as a technical expert member in discussions of the reproductive, maternal and newborn health working group, where the rising C-section rates were expressed as a major concern and one for which there was a dire need to generate evidence on the drivers and to develop appropriate interventions to address it.

The available literature in Bangladesh is largely descriptive, finding an association between wealth, educational status, the order of birth, the age of the woman and the number of antenatal care (ANC) visits (Begum et al., 2017) and C-sections. Only one qualitative study (Rostoker et al., 2018) explores in-depth factors but comes out largely with health systems factors such as lack of adequate human resources and logistics for carrying out normal deliveries and lack of adequate knowledge among obstetricians about absolute and relative indications for C-sections as the potential reasons. Physician-patient communication, though, which is seen as the heart and art of medicine that shapes decision-making, remains largely unexplored in the Bangladesh context. This research represents an attempt to reduce this existing gap.

Structure of the thesis

The thesis is divided into six chapters:

Chapter one provides a general introduction.

Chapter two presents a review of the literature. It provides a rationale for the research question and considers a range of theoretical frameworks that could be used. It includes a review of the literature on the factors influencing decision-making in C-sections and contextualises it to Bangladesh.

Chapter three describes the methods used for the study. It provides a critical review of the methodological approaches that were considered and explains why a mixed-methods study approach was used. The research design is described, including the approach that was taken for data collection and analysis. This section also considers the ethical issues arising from the study.

Chapter four presents the findings from the quantitative and qualitative phases of the study. In the first sub-section, the results of the observations that were undertaken in labour situations are presented. In the second sub-section, the qualitative findings from interviews with physicians and women who had undergone primary emergency and elective C-sections in the eight target health facilities are presented.

Chapter five discusses the results of the study in light of existing theories. The findings are reviewed in the context of the literature already published about factors influencing C-section decision-making with a focus on physician-patient communication.

Chapter six provides a conclusion outlining the implications of the study for health policy and practice concerning C-sections in Bangladesh and makes recommendations for future research.

Chapter Two - Decision-making/Informed Consent in Caesarean Sections – A Review of the Literature

Compiling data from 169 countries that comprised 98.4% of births globally, Boerma et al. (2018) estimate there were 29.7 million births through C-section in 2015. This figure was almost double the number of C-section births in 2000, estimated at 16 million. The authors have found strong evidence of overuse of C-section globally (beyond what is medically necessary). The World Health Organization had earlier estimated that 18.5 million C-sections are performed annually in the world (WHO, 2010). Molina et al. (2015) estimated there were 22.9 million C-sections in the world in 2012.

In its landmark publication estimating the global numbers and costs of unnecessary C-sections performed per year, WHO (2010) estimated that at least 6.2 million of the 18.5 million performed annually were unnecessary. The global excess was estimated at approximately US$ 2.32 billion.

The study used the 1985 recommendation of the technical group of the World Health Organization (WHO, 1985), which identified there was no justification for any country or region to have C-section rates higher than 10-15%. Since then, the global public health community has accepted this international standard for C-section, and the WHO's work on estimating global unnecessary C-sections assumes that all C-sections performed in countries above the threshold of 15% were excess. Several experts continue to question the limits set by WHO. It is important to understand the reasons for setting upper limits for C-section rates and then to discuss what would be an optimum rate.

In the most recent Lancet series on C-sections, Boerma et al. (2018) collated data from 169 countries and determined global variation in C-section rates. National C-section use varied from 0.6% in South Sudan to 58.1% in the Dominican Republic. Through this large study, Boerma et al. (2018) further estimated that 66.5% of the global increase was due to increasing deliveries in health facilities and 33.5% was due to an increase in C-section within health facilities. Of the 24 countries with the greatest intra-institutional C-section rates (the proportion of live births by C-sections within health institutions), Bangladesh ranked the first with 65.2%.

Bangladesh and its health system

According to WHO 2015 estimates, Bangladesh currently spends US $26.60 per person on health per year. Close to two-thirds (64%) of these funds come through out-of-pocket payments. The other major funding source is international development partners. Insurance

schemes and official user fees contribute very little to total health care funding (Islam, Ahsan and Biswas, 2015). Primary and ambulatory care is delivered through the public network of facilities, particularly through the community-based health care programme delivered by the community clinics, and by the private formal and informal and NGO providers. In urban areas, patients tend to use the outpatient units of major urban hospitals for ambulatory care.

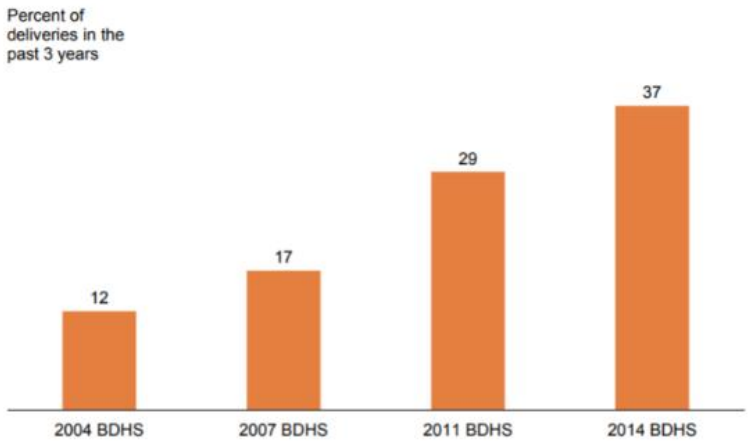
Secondary and inpatient care is provided through public facilities at upazila (sub-district), district, medical college and specialist urban hospitals, as well as private hospitals mainly in urban areas. It is estimated that there are 3.15 million births every year in Bangladesh (UNICEF, 2016). With a 42% skilled birth attendance at delivery, 31% is contributed by physicians and 11% by nurses, midwives and other cadres of skilled birth attendants. Thirteen percent of all deliveries in Bangladesh happen in public health facilities (NIPORT, 2014). Six out of 10 deliveries that happen in a health facility are C-sections (NIPORT, 2014), but segregation into public and private facilities for this data is not available.

From a population-based survey data, Islam and Yoshimura (2015) discovered that the frequency rate of caesarean deliveries in Bangladesh increased from 2.7% in 2001 to 12.2% in 2010. In 2011, the C-section rate had further increased to 17%, which is a 6-fold increase from 2001 and an approximately 5% increase from 2010 (Aminu et al., 2014). The rate further escalated to 24% by the end of 2014 according to the Bangladesh Demographic Health Survey (NIPORT, 2014), and the most recent Bangladesh Demographic Health Survey (NIPORT 2018) estimates the C-section rate to be 33%. Several studies have identified that the proportion of C-sections in Bangladesh conducted without a valid medical indication is high and has been argued to be a misuse of resources (M. T. Islam and Yoshimura, 2015).

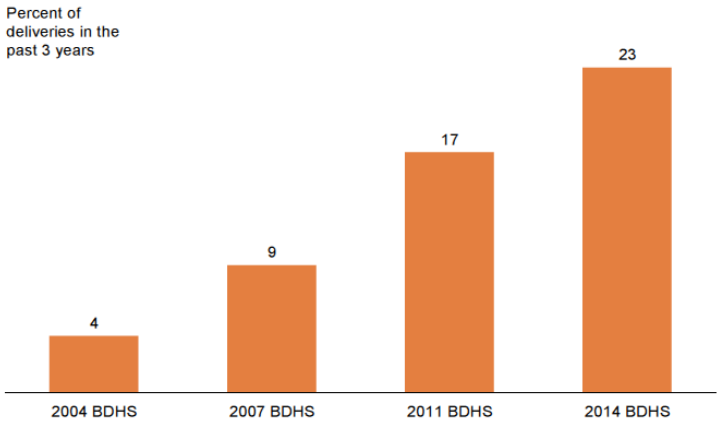
The figures below depict the trends in facility births and C-sections in Bangladesh. The growing trend of C-sections is quite visible and cannot be explained by an increase in supply alone. While there has been a three-fold increase in facility deliveries since 2004, there has been close to a six-fold increase in the proportion of births delivered by C-section in 2014.

Figure 1: Trend in facility births and those delivered by C-section in Bangladesh 2004-14

Trend in facility births 2004-2014



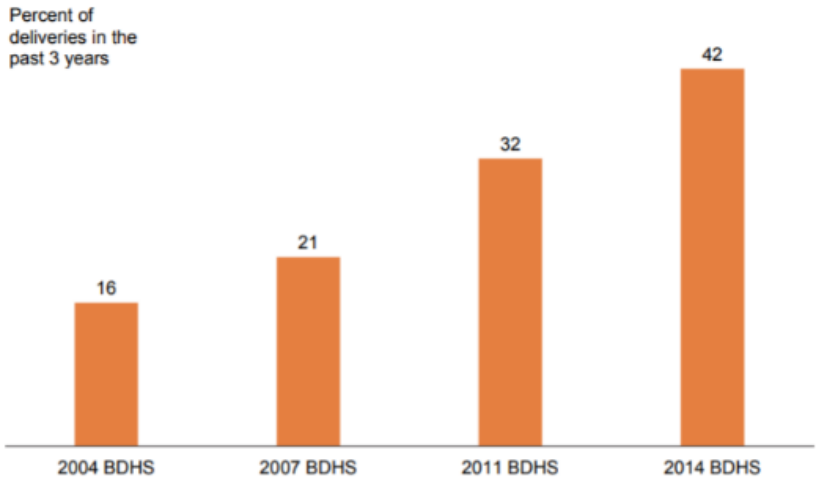
Trend in births delivered by C-section



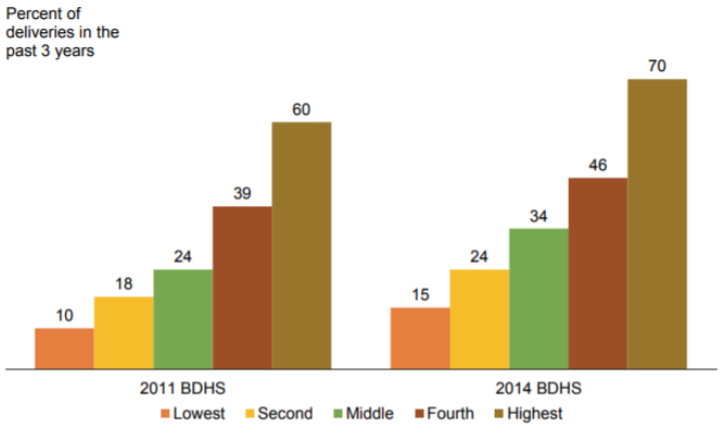
The charts below show the inequity that exists in Bangladesh in health care access. While the C-section rates continue to rise, 58% of the births in Bangladesh are unattended, and only 15% of the poorest quintile reach health facilities for delivery as against 70% of the richest quintile. The amount of excess expenditure on medically non-indicated C-sections might be better utilised to improve access to facility deliveries for the poorest quintile. This further substantiates the need to understand the decision-making and consenting process in C-sections to help rationalise them and to cut costs.

Figure 2: Skilled attendance at deliveries 2004-2014 classified by wealth quintile

Trend in skilled attendance at deliveries 2004-2014



Health facility delivery by wealth quintile, 2011 and 2014



In their study of 5 public hospitals in Bangladesh, Aminu et al. (2004) identified that C-section for the first time (primary C-section) constituted 63.0% (334/530) of all the patients in this study. Relative indications such as foetal distress, CPD, post-term, obstructed labour, breech presentation, "rupture of membranes" and failed induction accounted for about half (49.4%) of the primary C-section.

What is the optimum C-section rate?

While public health research acknowledges the benefit of C-sections as a life-saving measure at the individual and population levels, it raises questions about the impact of C-sections in bringing down maternal and neonatal mortality and morbidity at the population level, when it exceeds a threshold. The premise of this questioning is that C-sections, as with

any other surgery, are not risk-free (ACOG , 2014), have higher associated costs (International Federation of Health Plans, 2012) and could also convert the usual physiological birthing process into one of a pathological and medically intensive one thus undermining the capability of women to deliver normally (WHO, 2018).

The WHO statement (2015) on C-section rates is based on a systematic review of ecologic studies that concluded a) C-sections are life-saving only if used for medical indications; b) C-section rates over 10% at population level do not bring about a reduction in mortality and morbidity; c) C-sections, if not undertaken for medical indications, can cause morbidity, mortality and disability, particularly in settings that would have limited capacity to manage complications. In their assessment of 19 countries with high-quality data and low maternal and neonatal mortality, Ye et al. (2014) had earlier arrived at the same conclusion that once C-section rates reached 10% with adjustments, further increase in C-section rates had no impact on maternal, neonatal and infant mortality rates.

Other ecologic studies conclude that C-section rates above the threshold of 9-16% are not associated with a decrease in mortality outcomes (Betran et al., 2015). More recent work by Molina et al. (2015) concludes that national C-section rates up to about 19% were associated with lower maternal or neonatal mortality among WHO member states and the previously recommended target rates were too low. The newer limits are reflective of better data emerging from many countries and the ability to better associate C-section rates with maternal and neonatal mortality and morbidity.

Before arriving at their conclusion that C-section rates over 10-15% are unjustifiable from a medical perspective, Ye et al. (2016) consider the changing demographic, nutritional and epidemiological profile of populations worldwide. They also recognise the increasing autonomy of mothers in deciding the mode of delivery but clarify that the rates suggested should be seen from the perspective of whether they are medically indicated or not. Literature is filled with references to unnecessary C-sections when the optimum threshold rates for C-sections are exceeded. The term *unnecessary C-section* hence needs clarification.

Two useful definitions exist for unnecessary C-sections. Koroukian, Trisel and Rimm, (1998) define them as procedures without clear medical indications. Kabir et al. (2004) further expand the definition to those procedures without clear medical indication and those that expose the mother to more potential harm than benefits. It is indisputable that there are many good indications for delivery by C-section and attempts to reduce C-section rates are not always beneficial. However, a reduction in medically unnecessary C-sections is considered important to promote global health (Khunpradit et al., 2011). There are, however, other schools of thought

on this. Nicholas Fogelson (2010) an academic blogger, argues that "no caesarean can be deemed unnecessary," as the counterfactual—what would have happened if the C-section had not been carried out in that instance—is not possible to predict with certainty. An acceptable and reasonable alternative to necessary and unnecessary C-sections is to refer to medically indicated C-section and those that are not medically indicated.

The discussion here is what level of C-sections at the population level helps reduce maternal and perinatal mortality in the country. The argument that the C-section becomes "necessary" when the mother wants it should not be confused with whether it is done for medical indication or not and hence derives the greatest public health benefit for a country with limited resources. Evidence still seems to suggest that the public health benefit of C-sections for a country diminishes once it exceeds the critical level of 10-19% depending on which study is used as a reference.

In 2017-18, official C-section rates in Bangladesh touched 33%, which is a 10-fold increase from 2001 and an approximately 21% increase from 2010 (Aminu et al., 2014). Given the high proportion of C-sections done without a medical indication shown in many studies, the number of C-sections in Bangladesh conducted without a valid medical indication has been argued to be a misuse of resources (M. T. Islam and Yoshimura, 2015).

C-section rates in populations vs those in facilities

Robson, Hartigan and Murphy (2013) provide one of the major criticisms of discussing C-section rates without standardising the populations in the discussion. They argue that C-section rates should no longer be seen as being too low or too high but should focus on the appropriateness of the procedure after all relevant parameters (obstetrical case mix) are taken into consideration. They propose classifying C-section deliveries based on five characteristics: a) parity; b) onset of labour; c) gestational age; d) fetal presentation; and e) number of fetuses. WHO (2015), based on a systematic review, recommends Robson's 10 group classification as a global standard for comparing C-section rates, particularly within health care facilities over time.

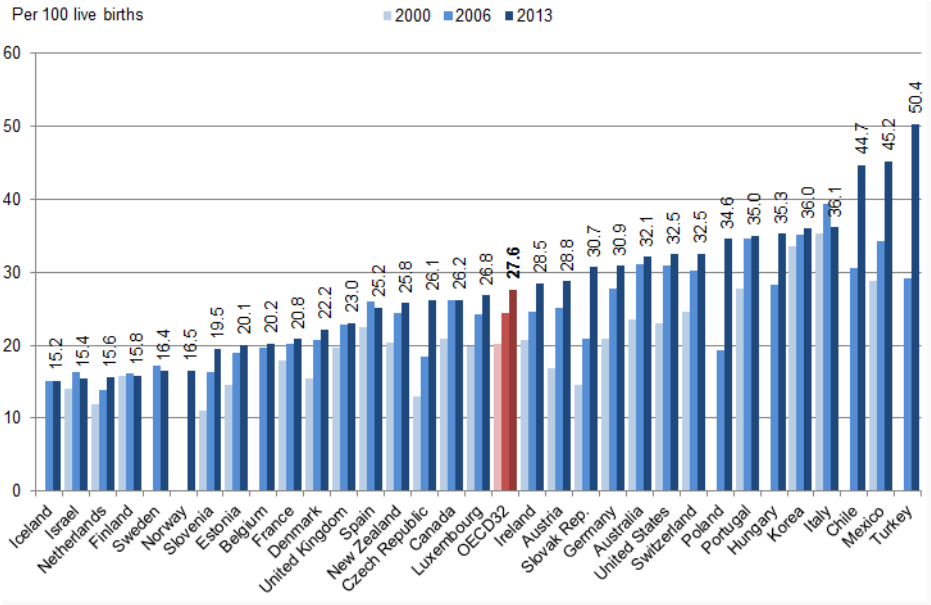
It should be acknowledged that among health care facilities, one should expect wide variations as higher-level facilities are likely to manage more complicated cases and hence C-section rates are likely to be higher in tertiary-level and likewise institutions. Based on a careful review of over 220,000 deliveries, Joffe et al. (1994) still conclude that there is no reason for general maternity units that focus on low-risk singleton pregnancies to have rates above 10 to

12%. Facility-based C-section rates hence should always be interpreted with caution, and Robson's classification is needed for accurate comparisons to be made across facilities.

Rising C-section rates and their consequence

While the pursuit for the ideal C-section rates continues, studies from all over the world document an increasing trend in C-section rates. One of the countries where data has been systematically analysed is the United States of America (USA). C-section rates in the USA have increased steadily since the 1990s, reaching a peak of 32.9% in 2009 (Boyle and Reddy, 2012). This increase has been observed among all ages, races, gestational ages and in all states. A more recent analysis of C-section rates across the OECD countries also documents such a rising trend globally (OECD, 2015).

Figure 3: Increasing C-section rates, 2000 to 2013 (OECD 2015)



Most OECD countries have seen C-section rates on average increase from 20% (2000) to 28% (2013). Middle-income countries such as Turkey, Mexico and Chile have seen the largest rises with C-section rates above 45%. One possible reason for some countries with stable C-section rates is their continued investment in the midwifery profession. Barring a few exceptions, countries on the left side of the chart have higher nurse/midwife ratios per 1000 people and much higher nurse and midwife/physician ratios when compared to countries on the right.

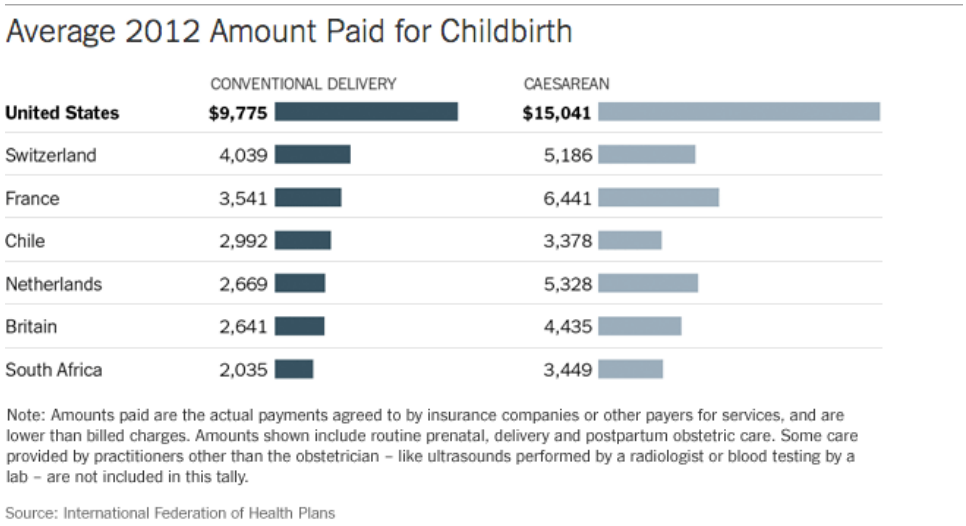
The midwifery profession is premised on the paradigm that pregnancy and childbirth are physiological events that require careful monitoring and avoidance of unnecessary interference (Monari et al., 2008). In Bangladesh, midwifery is a new profession, with only

1200 midwives graduated as of 2017. Physicians carry out 70% of deliveries that occur in health facilities, and 25% are conducted by nurses (NIPORT, 2014).

Costs to the individual and the health system

High C-section rates had been observed in Latin America during the seventies and eighties, and they continue to increase; Brazil, for example, has C-section rates of over 30%, reaching over 50% in certain provinces (Costa et al., 2010). The WHO global survey on maternal and perinatal health in Latin America (2010) estimates that about 11 million deliveries happen in Latin America. From a baseline of 15% to the observed 35% in C-section rates, an additional 2 million C-sections would be performed. Applying the cost of US $350 for a C-section in a country like Chile, the total cost runs in the hundreds of millions. In the UK, the Lancet (1997) estimated that a 1% increase in C-section rates would cost £5 million. According to the International Federation of Health Plans (2012), on average, C-sections are 1.5 times more expensive than normal vaginal deliveries.

Figure 4: Average costs of childbirth in select countries



C-sections have costs both for health systems and for individuals (Petrou, Henderson and Glazener, 2001). Women in their post-partum period may require additional support to maintain their families and work. Their partners and families may have to give up their regular productive activities (paid or unpaid work) in order to spend time with them and the newborn. Transport costs to and from the hospital, food costs and additional costs of special drugs may be considerable, and care for other children may have to be arranged. There is, however, a serious limitation in the literature estimating the indirect costs with C-section (Petrou, Henderson and Glazener, 2001).

Morbidity:

In its 2004-2008 global survey on maternal and perinatal health, WHO concluded that C-sections without medical indications were associated with an increased risk of adverse short-term maternal outcomes. The study, which analyzed all forms of deliveries and associated complications, concluded that when compared to spontaneous vaginal delivery, C-sections were associated with an increased risk of death, admission to the intensive care unit, blood transfusions and hysterectomy (Adjusted Odds Ratio (Adj OR), 5.93, 95% Confidence Interval (95% CI), 3.88 to 9.05). Also, this association was stronger in Africa, compared to Asia and Latin America (Souza et al., 2010). The risks are much greater in less-developed countries where the health infrastructure is poorer (M. T. Islam and Yoshimura, 2015).

The table below summarises the risks involved in vaginal and C-section delivery. Commissioned and compiled from various global studies by the National Institutes of Health, the below table forms part of the obstetric care consensus of the American College of Obstetricians and Gynaecologists (ACOG, 2014) on safe prevention of the primary caesarean delivery. The risks have been derived from large-scale population-based retrospective case-control and cohort studies. Cohort studies have expressed risks per 100,000 deliveries. For example, in a review of 2,940,362 births by Abenhaim et al. (2008), 227 cases of amniotic fluid embolism were identified. This translated into an incidence of 7.7 per 100,000 deliveries; 29.8% (876,228) of the deliveries were by C-section, and the rest were normal and assisted vaginal deliveries. Out of the 227 cases, 138 (61%) of them were after a C-section. This then translates into an incidence of 15.8 cases per 100,000 C-section deliveries and an odds ratio of 5.7 (95% CI 3.7 to 5.7).

Table 1: Risk of Adverse Maternal and Neonatal Outcomes by Mode of Delivery

Outcome	**Risk**	
Maternal	***Vaginal Delivery***	***Caesarean Delivery***
Overall severe morbidity and mortality*#	8.6%	9.2%*
	0.9%	2.7%#
Maternal mortality**	3.6:100,000	13.3:100,000
Amniotic fluid embolism	3.3–7.7:100,000	15.8:100,000
Third-degree or fourth-degree perineal laceration	1.0–3.0%	NA (scheduled delivery)
Placental abnormalities	Increased with prior caesarean delivery versus vaginal delivery	
Urinary incontinence	No difference between caesarean and vaginal delivery at two years.	
Postpartum depression	No difference between caesarean delivery and vaginal delivery.	

Neonatal	*Vaginal Delivery*	*Caesarean Delivery*
Laceration	NA	1.0–2.0%
Respiratory morbidity	< 1.0%	1.0–4.0% (without labour)
Shoulder dystocia	1.0–2.0%	0%

Reproduced from Safe Prevention of the Primary Caesarean Delivery, ACOG 2014. A compilation of researches commissioned by the National Institute of Health, USA.

* Hofmeyr et al. (2011)– Overall severe morbidity defined as one or more of the following: death, postpartum bleeding, genital tract injury: wound disruption, wound infection or both and systemic infection.
# Liu et al. (2007) – Overall severe morbidity and mortality defined as any one of the following: death, haemorrhage requiring hysterectomy or transfusion, uterine rupture, anaesthetic complications, shock, cardiac arrest, acute renal failure, assisted ventilation, venous thromboembolic event, major infection, in-hospital wound disruption, wound hematoma or both.** Data from Deneux-Theraux (2006)

Consistently, all the above studies have taken care to focus on low-risk pregnancies. For example, in their effort to assess post-partum maternal mortality risk after C-section, Deneux Theraux et al (2006) eliminate all antenatal morbidities in both cases and controls and restrict their analysis to singleton births in women who have not died due to conditions or complications present before delivery. Complications of anaesthesia, puerperal infection and venous thromboembolism were identified as the major contributors of C-section related morbidity and mortality (Deneux-Tharaux et al., 2006).

A broad range of psycho-social issues with women who underwent C-sections in the USA and their family members were observed when they were followed up throughout eight years (Mutryn, 1993). Apart from the limited evidence from the study, the psycho-social impact of C-sections in developing countries remains largely unexplored to date (WHO, 2015).

Maternal morbidities would most often occur after C-section in low-resource country settings (M. T. Islam and Yoshimura, 2015). Endometritis, wound infection, wound dehiscence, and haemorrhage are the common morbidities that usually occur immediately after C-section in low-resource country settings. The late consequences of C-section include increased risk of future spontaneous abortion, preterm labour, retained placenta, postpartum haemorrhage, and reduced fertility (M. T. Islam and Yoshimura, 2015). The risk of scar rupture is 0.2%-1.5% for a lower segment section and 4.0-9.0% for a classic section (Dutta, 2004). An increase of 10-20% in the rates of preterm delivery and neonatal mortality with increasing C-sections has been noted in Latin America (Villar et al., 2006).

The medical risk of C-sections in developing nations is much more than the developed nations due to poorer health and nutrition status of pregnant women, weaker health systems with limited human resources, medical supplies and lack of adequate infrastructure such as electricity and running water, among others (Shearer, 1993). The onus on rationalising C-

sections is much more on developing nations than on developed nations as the risk of its population being pushed into poverty and at the same time risking higher morbidity remains high.

Parkhurst and Rahman (2007) in their qualitative work in Bangladesh offer a further interesting perspective. They look at women who had utilised professional medical services for their childbirth. They observe that seeking professional services is only one of the many options women consider before deciding on how to go about their birthing experience. The stories collected from 30 women in rural Bangladesh revealed a sense of distrust of physician's diagnosis of need for the procedure. Women also had a high fear of costs. With the rising C-section rates, a group of women were concerned about going to facilities for seeking delivery services at the risk of compromising overall skilled birth attendance at delivery. The authors conclude that if a sense of trust is not created between the community and the obstetricians, Bangladesh's pursuit for universal access to skilled birth attendance at delivery may not be realised.

The work of Litorp et al. (2015) corroborates this by obtaining the perspective of obstetric caregivers (midwives and physicians) on this. In their work at a university hospital in Tanzania, they observed that caregivers had contrasting views on whether the hospital's C-section rate was a problem or not, but most thought there was an overuse of C-sections. All caregivers indicated that the reasons for C-sections were guided by circumstances outside their control. Many caregivers stated that their "fear of blame" from colleagues and management in case of adverse outcomes made them undertake caesareans on uncertain medical indications, while in private practice, economic motives and maternal requests were clearly expressed as the reasons by the same providers. It becomes clear that there are several factors that play on the minds of the patients and the physicians even before they come into contact with each other at the time of labour. This makes the physician-patient communication leading to informed consent a critical moment that could change course in C-section decision-making and hence help countries like Bangladesh optimize C-section rates.

Physician-patient communication as a critical link in C-section consent

Health care, in general, is about decisions jointly made by patients and their treating physicians. The decision that is eventually made in the best interest of the patient is influenced by the effectiveness of communication between the patient and the physician (Ha and Longnecker, 2010).

Informed consent to procedures is part of the shared decision-making process. The Royal College of Obstetricians and Gynaecologists (RCOG) define consent as a "process during which the professional provides accurate information concerning a procedure to a patient that allows them to reach a considered action" (RCOG, 2015).

The American College of Obstetricians and Gynaecologists call for effective and compassionate communication to strengthen the patient-physician relationship (ACOG, 2014). Physicians who encourage open communication with their patients are more likely to elicit complete information, obtain a more accurate diagnosis, offer to counsel and improve adherence to treatment plans (Roter, 1983, 1984).

Whatever the context in which medical decisions are made (General Medical Council (GMC), 2008), the physician is expected to do the following: a) listen to patients; b) discuss diagnosis, prognosis, treatment and care; c) share information in order to arrive at a decision; d) maximize patient's opportunities for them to make decisions for themselves; and e) respect patients' decisions.

A good partnership between the physician and the patient would follow a basic model (GMC, 2008) where

1) The physician and patient make an assessment and jointly agree on the patient's condition, taking into consideration the patient's medical history, views, experience and knowledge.
2) The physician uses specialist knowledge to determine the best course of action. The physician takes time to explain the options to the patient.
3) The patient can weigh the potential benefits, risks and burdens and determine the option they would like to pursue.
4) The physician and the patient jointly agree on the next course of action.

Different models of communication also exist and are recommended in medical practice including AIDET (acknowledge, introduce, duration, explanation, and thank) and RESPECT (rapport, empathy, support, partnership, explanations, cultural competence, and trust). These models impinge on basic communication skills and help define the communication competency of physicians.

Despite the presence of several structured models to strengthen patient-physician communication, compliance with such models remains low (Travaline, Ruchinskas and D'Alonzo, 2005), particularly in developing countries and in public services (Unger et al., 2002; Unger, Ghilbert and Fisher, 2003; Claramita, Dalen and Van Der Vleuten, 2011; Claramita et al., 2011; Gopichandran and Chetlapalli, 2015).

The communication process has three outcomes, according to Ha and Longnecker (2010), namely developing a rapport between the physician and the patient, sharing and exchanging of information and making a collaborative decision in the end.

Physicians, however, may tend to be over-confident about their communication skills and take this for granted (Tongue, Epps and Forese, 2005). In their study in an orthopaedic setting, they observed that while 75% of surgeons felt they had communicated satisfactorily, only 21% of their patients agreed.

The health consumer movement globally has forced the medical model to move from one of paternalism into one of individualism (Herndon and Pollick, 2002). The physician-patient relationship is not just one of exchange of information, but it is a platform to regulate emotions of patients, enhancing understanding of medical information by the patient, and an opportunity for the physician to understand the perceptions and expectations of the patient. Patients who report satisfactory communication with their physicians are more likely to be satisfied with the care received (Hall, Roter and Rand, 1981).

Broadly, the physician-patient relationship is explained by economic and medical-sociological theories (Stavropoulou, 2012). The existing economic models place the physician-patient relationship as one of agent and principal (Arrow, 1963; McGuire, 2000) as discussed earlier in the context of supplier-induced demand. The information asymmetry that exists in the physician-patient relationship places the physician as the agent who elicits the preference of the principal (patient) and maximises his/her utility. Physicians are empowered with their medical knowledge, but in a perfect model, they act as an agent who maximizes the principal's utility as if it were his/her own.

Evidence suggests that the physician and patient bring different expectations and emotions to the consultation, such as anxiety of the patient, the workload of the physician, fear of verbal abuse/legal proceedings and sometimes unrealistic expectations of patients (Fentiman, 2007; Ha and Longnecker, 2010), and hence, such a perfect relationship of agency is hardly ever possible (Britten et al., 2000). Modifications of this perfect model have suggested that, apart from the patient's needs, physicians take into consideration administrative issues, time constraints, personal beliefs and costs (Scott, 2000) in their decision-making.

DiMatteo (1998), when exploring the role of the physicians in emerging health care environments through a nationwide survey of the public and physicians in the USA, identified that physicians generally dislike patients voicing their concerns, expectations and requests for more information. This led to the disempowerment of patients, rendering them unable to reach their health goals (DiMatteo, 1998).

In the developed world, patients are increasingly recognising that they are not passive recipients of information and are demanding more information from physicians, thereby questioning their expert authority (Lee and Garvin, 2003). There is very little literature on the study of physician-patient communication in developing counties and how this has evolved. Available studies point towards poor communication between physicians and clinicians in the public sector (Jewkes, Abrahams and Mvo, 1998).

Physician-patient communication is still dominated by the biomedical model in developing countries (Unger, Ghilbert and Fisher, 2003). This could very well be the legacy of the colonial periods. Public health systems are geared towards disease control with quantitative objectives and not towards health promotion at the individual level. Three factors are cited as potential reasons for the lack of systematic communication between physicians and patients in developing counties (Unger, Ghilbert and Fisher, 2003):

- Patient-centred care is barely reflected in the medical curriculum in developing countries.
- Private practitioners may have little interest in non-lucrative preventive actions.
- The maximisation of income may conflict with promoting patient autonomy.

Studies have found that medical students tend to lose their empathy and communication competence as they progress in their medical career, which is tested by the sheer physical brutality/demands of medical training, particularly residency and internship (DiMatteo, 1998).

Good communication can improve the effectiveness of care. Active listening, empathy, and use of open-ended questions are all examples of good communication that can help influence patient satisfaction and improve the quality of care and health outcomes (Diette and Rand, 2007). The growing realisation of this has led to the birth of recent phenomena such as patient-centered communication and shared decision-making.

Patient-centred communication (PCC) helps practitioners provide care that is in sync with the values, needs and preferences of the patient. PCC permits the patients to provide input and actively to participate in decisions concerning their health. PCC has four domains (Epstein et al., 2005): 1) the patient's perspective, 2) the psychosocial context, 3) shared understanding, and 4) sharing power and responsibility.

While the phenomenon of shared decision-making (SDM) is similar to that of PCC, SDM is refined further to define the communication process as that in which there is active participation of both the patient and the physician in the decision-making using the best available evidence (Stubenrouch et al., 2016).

An important variable to consider in the shared decision-making process is the socio-economic status of the patient. Systematic reviews on the subject by Willems et al. (2005) and followed by Verlinde et al. (2012) using the same methodology have identified a clear association between the socio-economic status of the patient and their communication satisfaction in physician-patient encounters. Verlinde et al. (2012) grouped physician-patient communication under the themes of verbal behaviour, non-verbal behaviour and patient centeredness and found an inverse relationship between socio-economic status as defined by wealth, education and occupation and the extent and nature of communication between physicians and patients in their interactions.

Communication skills of physicians undoubtedly play a crucial role in a successful decision-making process. However, the medical curriculum worldwide does not provide adequate emphasis on these skills. Even when taught, it is not taught as a clinical skill by itself and as a set of procedures for outcomes of care (Kurtz, 2002).

Kurtz (2002) argues that communication skills encompass content skills (what physicians say), process skills (how physicians say what they say) and perception skills (what patients are thinking and feeling). While content and process skills are interpersonal skills, perception skills are intrapersonal. A good communicator will possess all the above skills, and training should emphasise enhancing both interpersonal and intrapersonal skills. Given the historical evolution of the medical profession, Kurtz (2002) outlines five principles of effective communication in the context of the physician-patient relationship:

1) Ensures interaction and not just transmission. Establishing common ground through the exchange of information is the premise of this principle.
2) Reduces unnecessary uncertainty. Providing information in a clear and unambiguous manner will allay anxiety and fear among patients.
3) Requires planning and thinking regarding outcomes. Effectiveness can only be determined in the context of outcomes of the intervention.
4) Demonstrates dynamism. This is about engaging with the patient in the moment, showing flexibility and the ability to show different approaches to different patients.
5) Follows a helical rather than a linear model, demonstrating a willingness to repeat, reiterate and provide feedback as many times as it takes to communicate effectively.

The RCOG (2009) consent advice on C-section requires that physicians or their representatives discuss at a minimum the following: 1) the proposed procedure, 2) its intended benefits, 3) serious and frequently occurring risks, 4) any extra procedures that may become necessary during the procedure, 5) what the procedure is likely to involve, 6) the benefits and

risks of any available alternative treatments including no treatment, 7) statement of patient procedures that should not be carried out without further discussion, 8) pre-operative information, and 9) anesthesia.

Bohren et al. (2015), in their mixed-methods systematic review on treatment of women during childbirth, conclude that childbirth worldwide is marred by mistreatment and identify compliance with any of the models of communication as the exception rather than the norm.

The central piece connecting the physician, the health system and the patient is the physician-patient communication. This communication and its influence on C-section rates is guided by an interplay of physician, patient and health system factors, as the literature identifies.

Determinants of C-section rates

Medical indications:

A C-section is a life-saving procedure, but "Whose life does it save?" is the question to answer. C-sections were originally seen to be life-saving for the mother who suffered from conditions such as placenta praevia, placenta accreta and eclampsia, among others. However, with time, the procedure is seen more and more to be life-saving for the foetuses (Barrett et al., 1990).

At this juncture, it is useful to discuss the types of C-section surgeries, as the type of surgery has a bearing on the strategies used to rationalise decision-making. C-sections can be classified according to the type of incision made as classical and lower segment; this classification though is academic, given that classical C-sections are hardly practised these days due to the risk of uterine rupture in future pregnancies. C-sections can also be classified as primary and secondary – the former being the mother's first C-section and the latter being repeat C-sections. C-sections are also classified as elective and emergency, but a standard way of defining these is still lacking. Robson, Hartigan and Murphy (2013) provide the most complete definition for this wherein they define an elective C-section as a planned procedure (greater than 24 hrs) carried out during routine working hours at greater than 39 weeks, on a woman who is neither in labour nor for whom labour has been induced. All other C-sections should be deemed an emergency, or more appropriately as non-elective.

The common medical indications from C-sections can be classified as absolute and relative. While placenta praevia, placenta accreta and eclampsia are some situations where C-section is absolutely indicated, subjective conditions such as dystocia, foetal distress and the

likes are often cited as reasons for C-section. The latter conditions have no clear definitions, and a great amount of subjectivity is infused in determining who among those go on to have C-sections. A great disparity in decision-making for C-sections exists among service providers for these conditions (Torloni et al., 2011).

Robson, Hartigan and Murphy (2001) argue for the need for standardisation of the definitions of these ambiguous conditions to be able to compare C-section rates among service providers and institutions. What drives high C-section rates in different countries varies from clinician to clinician, institution to institution and from country to country. However, the primary drivers of C-sections can be broadly classified under three headings: 1) physician factors, 2) patient factors, and 3) health system factors.

Physician factors:

Several studies from various parts of the world underscore the influence of the provider factor (Al-Mufti, McCarthy and Fisk, 1997) in the decision-making for C-sections. The circumstances in the labour ward are often associated with a power imbalance between the obstetrician and the pregnant woman and her family. This is equated with a male-dominated top-down power structure, where the service provider is allowed to make decisions in the best interest of the woman (LoCicero, 1993). This power dynamic might enable manipulation of information provided to the woman to coerce her into "requesting" a C-section and is not acceptable (LoCicero, 1993).

Labour and childbirth trigger a very complicated interaction between obstetricians and pregnant women. The scope of misunderstanding and conflict in some cases often becomes evident after the birth has taken place. Many women develop a feeling that the obstetricians were not sensitive to their needs and tried to wrest control of the birth process. Obstetricians, on the other hand, feel they are victims in a society plagued with threat and litigation. This compromise in the interaction between the key parties involved in decision-making could be driving unnecessary C-sections (LoCicero, 1993).

The theme of supplier-induced demand (SID) has existed in the health economics literature for a long time. SID is defined as the notion that physicians, when acting as agents for their patients, can use their "discretionary power" to engage in demand-shifting or inducement activities such that their recommended care differs from that which an informed agent would deem appropriate (Bickerdyke et al., 2002).

SID is driven by information asymmetry that exists between physicians and patients (Zweifel, Breyer and Kifmaan, 2009) and is further compounded by the deep-rooted attitudes of patients (Joseph-Williams, Elwyn and Edwards, 2014). This information asymmetry exists

because patients do not possess adequate information to recognise their health situation and to judge the options offered by the treating physician. Eventually, what medical treatment should happen is delegated to the physician with better information. As long as there is synergy between the interests of the physician and that of the patient, there are no consequences to the eventual decision being determined by the physicians. SID refers to situations when the interests are not in synergy, where the decisions of physicians are influenced by their personal interests (for example, income, leisure and avoiding risk of litigation, among others). Two theories, namely, increasing income and professional uncertainty (differing opinions among physicians), help explain supplier-induced demand (Folland, Goodman and Stano, 2012; Wennberg, Barnes and Zubkoff, 1982). The consequence of SID is usually over-utilisation of services (Mulley, 2009).

The increasing income theory of Folland, Goodman and Stano (2012) suggests that physicians remain motivated to have a certain level of income as determined by their needs. It theorises that a risk of income falling below a certain level alters behaviour in order to help reach the target income they have set for themselves. This could change the diagnostic and therapeutic recommendations provided to their patients. This theory is cited by Sakala (1993) and Folland et al. (2012) in their pursuit to provide an economic reason for the rising C-section rates.

The professional uncertainty theory, on the other hand, suggests that the autonomy and differing individual practice patterns of physicians may influence their thinking on the effectiveness (Wennberg, Barnes and Zubkoff, 1982). This difference in approach could influence medical decisions, thus defying the achievement of uniformly accepted standards of care. When standardised pathways are not practised, uncertainty prevails, and the phenomenon of SID thrives, leading to requests for unwanted services and hence net overutilization of services (Mulley, 2009).

In private practice, it is clear in several circumstances that financial gains (Allin et al., 2015) drive high C-section rates. Even in the public sector where deliveries were incentivised, there occurs an increased proportion of C-sections – this was particularly exaggerated when C-sections were incentivised more than vaginal deliveries. Using administrative data from five million hospital records in Canada, Allin et al. (2015) observed that doubling the compensation for C-sections relative to a normal vaginal delivery led to a 5.6% percentage points' increase in the likelihood of C-sections. In Bangladesh, an evaluation of the demand side financing project, where providers are incentivised more for C-sections, a spike in the rates was observed (Hatt et al., 2010). On the other hand, programmes that have tried to equalise the incentives for

both vaginal deliveries and C-sections have not consistently led to a reduction in C-sections (Sakala, 1993). Seeking a second opinion, providing feedback and audits based on established clinical guidelines and education by opinion leaders are thought to be more important considerations (Chen et al., 2018).

On the issue of financial gains, some researchers have found that a greater proportion of C-sections happen in low-fertility settings. With lower fertility, as observed in Taiwan, obstetricians get to conduct fewer deliveries, thus compromising their regular income (Ma, Norton and Lee, 2010). When they resort to a greater proportion of C-sections, this compensates for the lesser number of deliveries they conduct. This is also seen as a reason when obstetricians are not willing to encourage midwives in regular practice, as they are seen to be competitors for a minimum number of clients. While midwives, who are comprehensive reproductive health care providers and who stay with the pregnant women right through the course of the pregnancy, are expected to promote normal deliveries, in some instance they have observed to claim overwork and hence refer for more C-sections. In other instances, midwifery practice has not necessarily contributed to a decrease in C-section rates (Lawton et al., 2013). Though not studied from that perspective, Bangladesh is a low-fertility country with a total fertility rate of 2.3, and this could well be a contributing factor to the rising C-section rates.

A further possible explanatory factor in C-section decision-making is the level of training and experience of the physician. C-sections are provided by different categories of physicians, ranging from senior house officers to registrars to consultants, and they have varying training backgrounds. Studies have documented a relationship between training and experience with C-section decision-making (Berkowitz et al., 1989; Burns, Geller and Wholey, 1995; Goldfarb, 1984; Tussing and Wojtowycz, 1992). The relationship in most cases is that the more experienced physicians tended to have lower C-section rates. The relationship with training though has been found to be more complex. For example, Tussing and Wojtowycz (1992) found in their study, a greater tendency for C-sections among board-certified professionals who had received an additional period of training when compared to their counterparts who also performed C-sections. The relationship is unclear because the more highly trained physicians could be managing more complicated cases and cases referred from other institutions. In other instances, poor quality of education of obstetricians did not give them the confidence to practice evidence-based medicine, including providing assisted vaginal deliveries (Goetzinger and Macones, 2008).

There are other physician factors that drive high C-section rates in other countries. This includes the fear of blame by peers and others (Litorp et al., 2015) for any adverse event that

might occur as a consequence of promoting normal vaginal deliveries. C-sections are seen as the easy way out to avoid any blame in doubtful indications (Litorp et al., 2015). This is based on a false sense of security among physicians (Jena et al., 2015) and reflects physicians trying to do what is best for them and not for the women and their families (Localio et al., 1993; Litorp et al., 2015).This is particularly evident in the case of the trial of vaginal deliveries in women with previous C-sections.

While the literature suggests that normal vaginal deliveries can happen in up to 70% of women who have had a previous C-section, obstetricians are often unwilling to try this because the fear of uterine rupture, although a small risk, propels them to undertake a C-section (Paul and Miller, 1995). Minkoff (2012) explains this phenomenon better in his paper on litigation and C-section rates. In the context of the discussion on defensive medicine, C-sections are seen as part of defensive obstetrics. Nine common reasons are identified as to why obstetricians are sued in the USA; 6 out of the nine were related to an allegation of a failure to do a C-section or at least to do it timely. There are four factors that the physicians have to consider in their decision-making: 1) the likelihood of being sued, 2) the harm of a lawsuit, 3) the effectiveness of C-section in avoiding a lawsuit, and 4) any potential harm from caesareans to the patient. Minkoff (2012) concludes that while physicians may overestimate the likelihood of being sued, the effect of which could be profound to their professional careers, and a belief that performing a C-section is likely to mitigate the chances of a successful lawsuit, they tend to ignore the potentially harmful effect of C-sections on their patients. The last consideration tends to lose out to others, as this is the only consideration where the patient is the affected party and not the physician.

In their systematic review of clinicians' views of factors influencing decision-making in C-sections, Panda, Begley and Daly (2018) observe the difference in views between physicians from OECD and non-OECD countries on these perceptions. The difference between the two sets of countries is related to variations in legal systems, availability and efficiency of human and infrastructural resources, the existence of insurance/payment schemes and the difference in efficiency and effectiveness of private and public health care systems.

Clinicians in non-OECD countries were influenced by pressure from women and their families, the health system weaknesses, the court of law and the resulting stigma, whereas clinicians from the OECD countries feared complications and adverse outcomes and being sued in a court of law in addition to workload and stress.

Other qualitative studies have observed that personality characteristics of obstetricians, including their own birthing experiences (LoCicero, 1993), could influence the decision to undertake C-sections.

Patient factors

While clinicians and pregnant women globally have begun to view C-sections as safe procedures, there are other factors that drive pregnant women to seek C-sections. The reasons vary from country to country and location to location. The challenges with recording the reasons for having a C-section have been acknowledged globally. In countries where indications for C-sections are systematically recorded, there is nothing to suggest that maternal requests are driving the rise in C-sections.

The notion that C-sections are driven by maternal requests has been questioned by Souza et al. (2010) in their global survey on maternal and perinatal health for the WHO. The study analysed 286,565 deliveries in 24 countries; it found a C-section rate of 25.7%. Only 1% of the C-sections were recorded to be for non-medical indications, including due to maternal requests. What is important to underscore is the fact the "medical indications" include several subjective indications, such as foetal distress and dystocia. Such subjectivity provides an opportunity to service providers to choose a "safe indication" to record in the hospital case records and birth certificate entries. Simple retrospective analysis of case records and birth registries will not provide the true picture of the reasons behind C-sections. The crucial point here is that the non-medical indications, such as maternal requests, are not driving the high C-section rates as some would believe. Souza et al. (2010) also identified that all forms of delivery other than spontaneous vaginal delivery were associated with mortality and morbidity. They conclude that C-sections should be performed only when a clear medical benefit is anticipated.

In spite of the media rhetoric of women in a state of "too posh to push," which means that women do not want to go through labour for fear of pains and also to have an easy and convenient birth, there is little evidence globally to suggest that this is indeed contributing to the rise in C-section rates (Litorp et al., 2015). Instead, it can be argued that obstetric policies, changing attitudes or behaviours of clinicians and a lower threshold for C-sections are driving the rise. There is further evidence to this in China, where a detailed analysis by Bogg et al. (2010) found that although the procedure was more common among wealthy and well-educated women, the rate rose alarmingly in all socioeconomic groups, including the poor, the uneducated and the rural population. They concluded that wealth and education could not be the only driving factors in the rising C-section rates.

Menacker, Declercq and Macdorman (2006), in a review of 4 million birth certificates in the USA, also concluded that 3-7% of the C-sections in the country were carried out without a medical indication. In all these cases, they were not able to conclude whether the procedures were carried out due to maternal request or physician preference. Based on their review of the literature and the study, they conclude that there was little data to support the contention that the rise in C-section rates was due to maternal requests.

In countries where maternal requests are a valid indication for C-section, Dweik and Sluijs (2015) argue that a fear of childbirth often drives the request for the C-section. They conclude that a maternal request should be seen as a sign of increased vulnerability and not as a need that should be met. The UK National Institute for Health and Care Excellence (NICE) guidelines (2011) permits the use of C-section at the request of the mother in the UK but after the woman has been offered a discussion with a member of the maternity team, including meeting a mental health expert to allay any anxiety that may be associated with the decision. While such facilities may exist in developed countries such as the UK, there is limited evidence to suggest that such opportunities exist for women in developing countries to make an informed decision.

Sanavi et al. (2012), in their qualitative studies in Iran, conclude that the "fear of unknown" and lack of understanding about the true pros and cons of C-sections contributes to maternal requests where it happens. The pursuit for success for mothers and babies on the part of both the service providers and the women means that women are obliged to choose C-sections as they seem the most obvious, sensible and safe ordered option (Bryant et al., 2007).

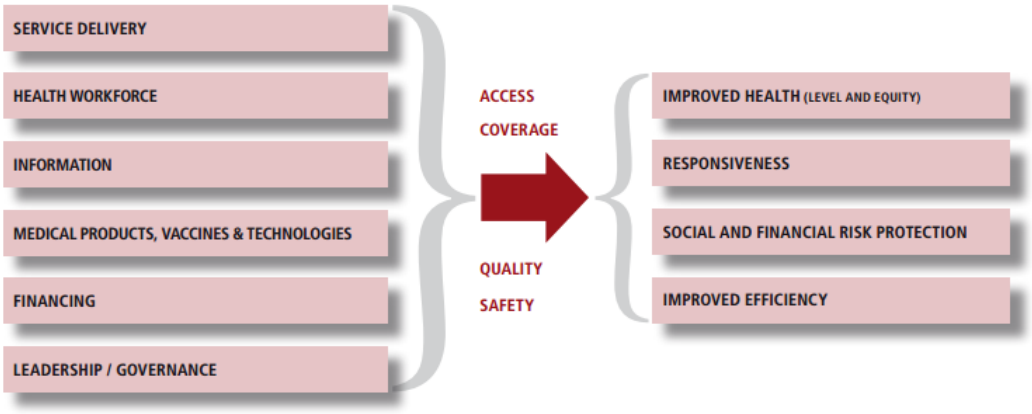
In their study on the prevalence of and reasons for C-section preference in China, Long et al. (2018) identify that C-section preferences, though a minority among women, is often due to fear of vaginal birth given their perceived risks to the baby. Fear of labour pain, fear of pelvic floor damage, fear of incontinence, and a negative effect on their future sexual relationships have been identified as common reasons for C-section preference in other studies (Betran et al., 2018). Fear of episiotomy in particular has been identified as a common reason for fear of childbirth among Egyptian women (El-Aziz, Mansour and Hassan, 2017). Less common reasons included covenience of combining with tubal ligation, scheduling delivery on an auspicious day, father's preference, and previous negative experiences including disrespect and abuse were cited as reasons by women all over the world (Betran et al., 2018).

While it is acknowledged that maternal requests for C-section could be increasing, these seem to be negligible when compared to the speed at which C-section rates are increasing globally. There remains scope to understand the dynamics behind maternal requests in

countries where they are not approved indications; the influence of physician factors particularly needs further exploration.

Health systems factors

C-sections in the absence of need are a pathologising paradox for public health (Douche and Carryer, 2011). The implication can be manifold. Health systems have both a cause and an effect on C-sections. WHO (2007) identifies six building blocks in health systems.



THE SIX BUILDING BLOCKS OF A HEALTH SYSTEM: AIMS AND DESIRABLE ATTRIBUTES

Available evidence (Lauer and Betran, 2007; Leone, Padmadas and Matthews, 2008; Neuman et al., 2014) suggests that each of the six building blocks can influence the C-section rates in a country. While the physician factors responsible for rising C-sections have been discussed above, an important cadre within the health system, who have a key role to play in influencing the C-section rates, are midwives.

Midwives are trained to view deliveries from a physiological point of view concerning women, children and families (Sakala, 1993). Obstetricians, on the other hand, are influenced by their thinking around pathologies and are influenced to intervene in the delivery process (Sakala, 1993). Sandall et al. (2015) in their Cochrane review of the midwife-led continuity model versus other models of care conclude that women who received midwife-led care were less likely to undergo C-sections, more likely to be satisfied with their care and had far fewer adverse outcomes when compared to other models of care.

One study in New Zealand (Lawton et al., 2013) found an increase in C-sections associated with the national midwifery-led care model, but it seemed to be an exception. This study, however, suggests that the model of midwifery-led care could also vary from country to country.

Income levels, the number of hospitals and hospital beds per head also drive the C-section rates in developed countries, indicating that the greater the capacity of the health system to conduct C-sections, the more they are likely to be conducted (Belizan, Althabe and Cafferata, 2007; Lauer and Betran, 2007).

On the issue of health financing, in the USA, the fact that women who are better insured and/or seek private medical care are more likely to have C-sections when compared to those with poor insurance and/or seek public medical care illustrates that the source of financing of health services has a big impact on the C-section rates (Sakala, 1993).

Compensating service providers for deliveries has proven to drive C-section rates in other contexts. Countries that provide higher financial incentives to service providers for a C-section when compared to normal vaginal deliveries have seen a rise in C-section rates. However, when the levels of financial compensation for both normal deliveries and C-sections are equalised, a stabilisation of C-section rates is not automatically observed (Stafford, 1990).

Stafford (1990) summarises six health system measures to reduce C-section rates: 1) education and peer review, 2) external review, 3) public dissemination of C-section rates, 4) changes in physician payment, 5) changes in hospital payment, and 6) medical malpractice reform. Stafford, through his work, concludes that departmental programmes are expected to make the greatest impact. Use of protocols, computerised data collection and peer review were expected to make the biggest impact. This underscores the peer influence and the value of feedback in optimising C-section rates.

A Cochrane review of non-clinical interventions (Khunpradit et al., 2011) to reduce unnecessary C-sections concluded that implementation of guidelines with a mandatory second opinion, peer review and guidelines with the endorsement of local opinion leaders could influence C-section rates in a specific situation. The types of interventions that are likely to succeed in reducing C-section rates also make it evident that the role of service providers and their influence in the health system determine the C-section rates.

Though guidelines at the first instance would seem like a logical step to rationalise decision-making in C-sections, work by Walker, Turnbull and Wilkinson (2002) did not observe any reduction in C-section rates with the introduction of guidelines alone. Kabakian-Khasholian et al. (2007), in their analysis of the policy environment in Lebanon, conclude that the organization of the health care system as a whole with the dominance of the private sector provision of health care services, lack of physician accountability, undermining of the role of midwives and women's misconceptions about C-sections were driving the high C-section rates.

There is also an instance of other health policies that have influenced increasing C-section rates in some countries. China is an example where the imposing of the one-child norm led to service providers and women wanting to take the perceived safest route of C-sections for their precious baby (Hellerstein, Feldman and Duan, 2015). In China, C-sections became more a norm than an exception as a societal consensus had emerged (Feng et al., 2012). In Brazil, inadequate family planning services drove the C-section in the late 70s and 80s. Since three or more C-sections were seen as a contraindication for future pregnancies, women became eligible for female sterilisation services combined with C-sections, which were otherwise not universally available and accessible. Women hence were seen to accumulate more C-sections to make them eligible for sterilisation services (Janowitz et al., 1982). A similar pattern was also observed in Argentina; the uptake of C-sections was associated with free family planning services (Sakala, 1993).

Strategies to reduce C-section rates - What has worked?

Several countries globally remain concerned about the rising C-section rates, particularly the continued rise of medically unnecessary C-sections (WHO, 2015). There has been a better understanding of the positive and negative implications of caesarean deliveries in the last three decades (WHO, 2015). Countries have attempted to reduce the C-section rates because of the negative implications regarding morbidity and mortality associated with the procedure and the associated health system costs.

Very few countries have seen successes at a national level, but there have been successful interventions at a facility level or a defined geographic level. Khunpradit et al. (2011), in their Cochrane review on non-clinical interventions for reducing unnecessary C-sections, grouped efforts to reduce C-sections in the following way: 1) physician directed, 2) patient directed, 3) organizational, 4) financial, and 5) regulatory.

Chen et al. (2018), in their more recent Cochrane review, classify interventions to reduce C-sections as those targeting women and families, those targeting health professionals, and those targeting health care organisations or facilities. Available evidence seems to suggest that interventions targeting health care professionals are the ones likely to work. Implementation of guidelines, mandatory second opinions, audit and feedback provided to service providers and education of health care professionals by opinion leaders (obstetricians) are likely to decrease unnecessary C-sections. With available evidence, other non-medical interventions did not seem to help reduce the rates.

Young (1997) recommends eight key practices for safely reducing C-section rates: 1) physician profiling/report cards, 2) aligning financial incentives, 3) trial of labour after a previous C-section, 4) guidelines for the diagnosis and management of dystocia, 5) patient demand management, 6) appropriate epidural use, 7) dedicated inpatient obstetrician on call 24 hours inside the hospital, and 8) one-to-one coverage throughout labour for support.

Khunpradit et al's (2011) work excludes the proven clinical manoeuvres that would help reduce C-section rates. This includes the use of external cephalic version for breech presentations, use of foetal partogram with a four-hour action line, and foetal blood sampling to confirm pH before C-sections (NICE, 2011). The NICE (2011) guidelines summarise global research and factors affecting C-section rates as below:

Table 2: Factors affecting C- sections (NICE, 2011)

Reduces likelihood	**Increases likelihood**	**Makes no difference**	**Impact unknown**
Home delivery	Electronic fetal monitoring	Childbirth in a midwifery-led unit	Complimentary therapy such as acupuncture, aromatherapy, hypnosis and other alternative forms of medicine.
Continuous labour support		Active labour management	
Partogram with a 4-hour action line		Amniotomy	
Involvement of consultant obstetricians		Walking in labour	
		Immersion in water	
		Epidural analgesia	

FIGO's position paper in the Lancet (Visser et al., 2018) asks for the following from various stakeholders to help optimise C-sections globally:

1) Delivery fees for C-section and the vaginal delivery should be the same.
2) Hospitals should be obliged to publish annual C-section rates.
3) Hospitals should use Robson's classification for classifying C-section indications.
4) Women should be informed properly on the benefits and risks of a C-section.
5) Money becoming available from lowering C-section rates should be reinvested in better maternal care.
6) Very low-income countries have low C-section rates demonstrating impeding access, and this should not be lost in the concern on growing C-section rates in most parts of the world.

It is evident from the literature review that the reasons for increasing C-section rates likely vary from country to country. Whatever the influence, the final decision manifesting as consent for C-section impinges on the communication between the physicians and the patients. Primary C-sections offer the best opportunity to rationalise decision-making as they can help manage subsequent C-sections.

ACOG (2014) indicates that some approaches are likely to be needed to reduce the primary caesarean delivery rate, which in turn would lower the repeat caesarean delivery rate. They call upon individuals, organisations, and governing bodies to ensure that research is conducted to provide a better knowledge base to guide decisions regarding caesarean delivery and to encourage policy changes that safely lower the rate of primary caesarean delivery.

"Medicine is an art whose magic and creative ability have long been recognised as residing in the interpersonal effects of patient-physician relationship" (Hall, Roter and Rand, p.22, 1981). Effective physician-patient communication is a critical component of building a physician-patient relationship with the ultimate objective of improving the patient's health and medical care. The communication that happens in the context of labour situation is not just demonstrative of the communication competence of the physician and the patient but is a reflection of underlying attitudes, assumptions, experiences, personality, education levels, support systems and emotions behind it on the parts of both the physician and the patient (Warnecke, 2014).

Observation of physician-patient communication and in-depth interviews of physicians and their patients remain the best possible approaches to understanding the intricate drivers of C-section rates in Bangladesh. However, there is very limited literature examining the communication between physicians and patients in the lead up to C-section decision-making in Bangladesh.

This study will help analyse the communications behind the primary C-section consenting process in public sector hospitals of Bangladesh. With a better understanding of the kind of communication that happens in the context of the primary C-section decision-making/consenting process, Bangladesh should be able to determine the best ways to improve this in government-provided health care services in public sector hospitals and to optimize its overall C-section rates.

Chapter Three - Methods

Introduction

The previous chapter reviewed the literature on the rising C-sections globally and the situation in Bangladesh. The review of literature discussed the physician, patient and health system factors and their interplay in the C-sections decision-making process. The centrality of the physician-patient communication in the shared decision-making process for C-sections was also revealed in the literature review.

This chapter outlines the approaches to understanding the decision-making process for conducting C-sections in public sector hospitals in Bangladesh. The study chose to focus on public sector hospitals, as there were no obvious drivers such as financial incentives when compared to the private sector, which functions as "for profit" enterprises. Relevant literature is discussed on pages 24-26 of the literature review. This study, which is part of a larger study looking at multiple factors influencing decision-making around C-sections, follows a cross-sectional design with a mixed-method data collection approach including quantitative and qualitative techniques. The larger study is being conducted on behalf of the Government of Bangladesh, and its details are provided in Appendix 1.

The specific role of the PD researcher in the context of the larger research is outlined in detail in the appendix. As a summary, the lead researcher of the PD research study was selectively involved in leading all aspects of the PD research component of the study only. The PD research study has been designed based on the research paradigm of the lead researcher backed by rigorous literature review.

The idea of the PD study and its design was fully conceived and developed by the PD researcher. The protocol development, its submission for local and university ethical clearance, arriving at a sampling design, obtaining necessary permissions from the Ministry of Health and Family Welfare of Bangladesh, recruitment and training of data collectors (including design and development of training modules), active monitoring and supervision during the data collection stages, analysing the collected data, writing the report and plan for dissemination were all done by the PD researcher.

Data collection for the study was done by experienced researchers (qualifications discussed in the methods section) as part of the research in paper format, and data entry was done at the data entry unit of ICDDR'B. Data analysis (quantitative and qualitative components) of the study component was done by the PD researcher. Language and gender

limitations of the researcher in collecting data is explained under "reflexivity and positionality" on pages 41 and 42.

In order to have a tangible end to the decision-making process, the study chooses to use the eventual decision of pregnant women to consent to a C-section as the endpoint in the decision-making process. While the review of literature covers service provider (physician), patient (pregnant women) and health systems factors, the influence of the service provider and their communication with the patient is the critical point of intersection, which has a major influence on the decision on the mode of delivery (Jou et al., 2015). This interaction, however, does not happen in a vacuum. There are possible health system and socio-economic influences on both the physician and the pregnant woman, which could influence this decision-making process and eventual consent for caesarean sections.

To date, there is no literature in Bangladesh on who influences whom and how the communication between physicians and pregnant women happens in the context of caesarean decision-making.

The aim and objectives of the research

*This research aim*s to study factors influencing decision-making for C-section deliveries in public sector hospitals in Bangladesh.

The objectives of the research project are:

1) To examine the communication between physicians and patients in the lead up to obtaining valid consent for emergency C-sections – by direct observation of deliberations that happen during labour between physicians and pregnant women.
2) To study communication competence of physicians and patients in the consenting process of primary C-sections – through in-depth interviews with physicians and patients who had undergone emergency caesarean sections.
3) To understand how consent was facilitated in elective situations through in-depth interviews of women who underwent elective caesarean sections.

Theoretical frameworks and methodology

The theoretical framework used in this study is based on a positivist approach using interaction analysis (Bale, 1950; Elwyn et al., 2003; Roter and Hall, 1989) and is complemented by an interpretivist approach of critical consultation analysis (Habermas, 1987; Scambler and Britten, 2001).

Interaction analysis operates from the premise that interpersonal communication can be classified regarding the purpose it serves (Greenhalgh and Heath, 2010). Roter and Hall (1989), in their review of literature in the evolution of interaction analysis, begin referring to Bale's process analysis system (1960), which classifies patterns of interaction, communication and decision-making in clinical settings into the domains of task (cure talk) and socioemotional (care talk). This basic classification of physician-patient communication has been further improvised by several researchers (Charles, Gafni and Welan, 1997; Henbest and Stewart, 1989; Henbest and Stewart, 1990; Elwyn et al., 2003, 2012 2017) into one of patient-centeredness and followed by the advent of the concept of shared decision-making.

Scambler and Britten (2001) have two principal criticisms of interaction analysis in understanding shared decision-making processes: 1) the questionable psychometric properties of the tools used and their usage in a consultation setting, which is regarded as a fixed unit of analysis without putting it in the context in which it takes place; and 2) lack of scope for asking critical questions as to how the interaction came about and why it unfolded that way.

Medical sociologists view interaction as being fundamentally social (Greenhalgh and Heath, 2010), and the researchers from this field question why interaction happened in a certain way at a certain time. Habermas (1987) argues that interaction must be seen within a larger social context and urges researchers to look at the power dynamics behind the interaction and the wider social system that fashioned this power dynamic. In his theory of communicative action, Habermas outlines three important influences in interactions:

1) An ulterior motive in either parties interacting using either conscious or unconscious deception;
2) Systems (economic and state – simplified as money and power) influencing families and households; and
3) The wider socio-political context in which the communication happens ("micro" – the interpersonal relationships – in the context of "macro" – the wider socio-political environment).

The Habermasian analysis calls for looking at both the physician-patient interaction and the wider context in which it is taking place. A combination of observation of physician-patient interaction and in-depth narrative interviews as a complementary study design is expected to provide a holistic picture in studying the decision-making process for conducting C-sections. The research study uses structured observations in labour situations using a tool with excellent psychometric properties and is complemented by in-depth interviews of

physicians and their patients to understand the social context in which physician-patient communication happens and an eventual C-section decision is made.

The following section discusses the specific research methods that have been chosen for each of the research objectives.

Mixed-methods study approach

The research question at hand involves studying the factors influencing decision-making around C-sections in public sector hospitals in real life settings where biomedical and social factors are in play. The Habermasian model establishes that physician-patient communication does not happen in a vacuum but under the influence of hidden factors which cannot be understood by the way communication happens alone in a clinic setting. A blend of a closed-ended, structured observation on how the communication happens and open-ended, in-depth interviews with both the physicians and patients is hence needed to close the gap on what the observation might not have picked up including the influence of physicians and patients.

Physician-patient communication is non-linear, complex and cannot be modelled using one form of research methodology alone (Epstein et al., 2005). While research methodologies operate broadly within the quantitative and qualitative paradigms, a movement to bring in a partnership approach between the two paradigms is now well entrenched in health services research (McDowell and MacLean, 1998).

The blending of the two paradigms saw the birth of mixed-methods research. Though mixed-methods research was in practice since the 1950s, it gained momentum in the 1980s and continues to be used by researchers' worldwide. Mixed methods have the potential to produce rigorous and methodologically sound research in primary care (J. W. Creswell, Fetters and Ivankova, 2004).

Mixed-methods research is more than simply collecting quantitative and qualitative data but an indication that the data collected through both methods would be mixed, integrated or related at an appropriate stage of the research process. It would be important to understand the reasons for combining the two methodologies and be certain that one methodology alone will not be able to answer the research question (McDowell and MacLean, 1998).

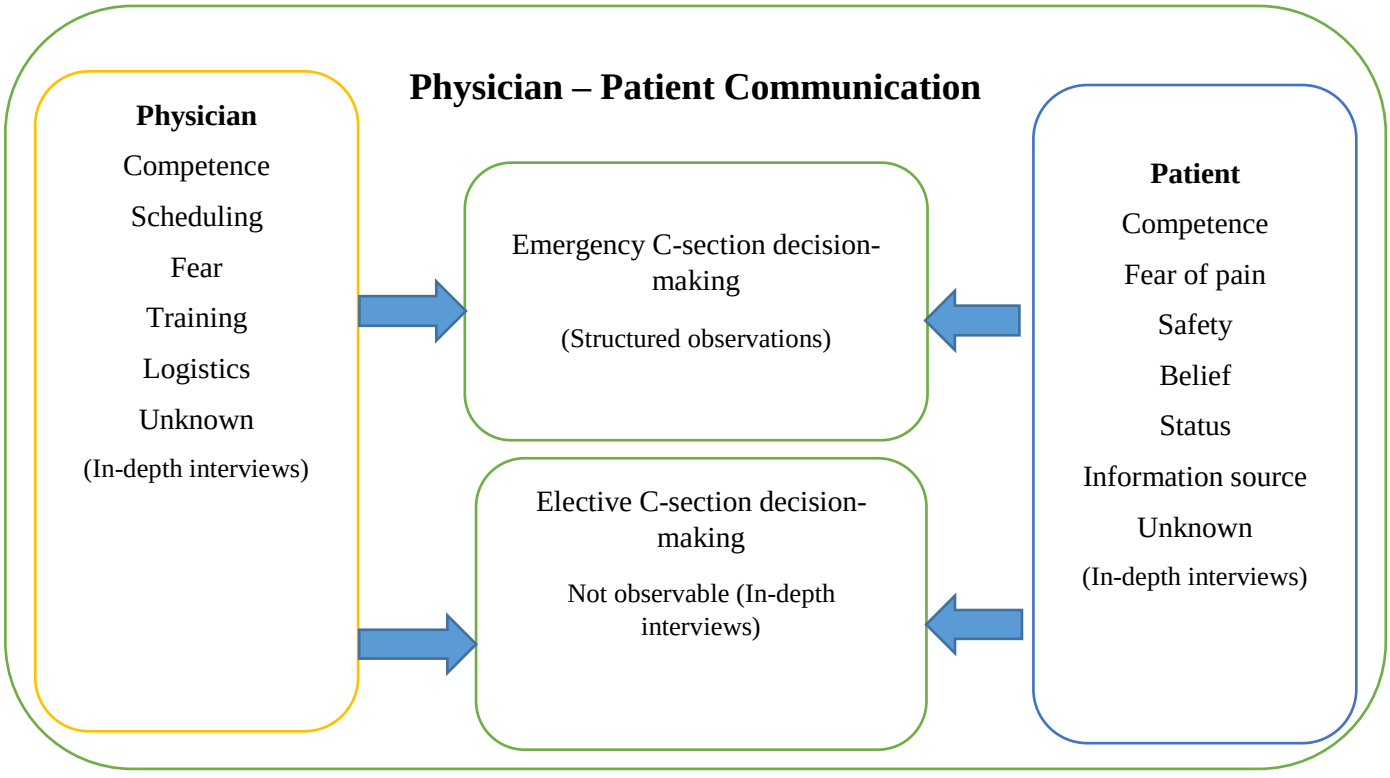
Mixed-methods research is expected to take more time, cost more and also need additional expertise from the researcher who needs to show awareness and deep understanding of the two methodologies. But there are also distinct advantages of utilizing mixed-methods

design as outlined in the literature (Glik et al., 1986; O'Cathain and Thomas, 2006; Sandelowski, 2006). It not only ensures comprehensiveness - since both methods allow the issue to be studied more widely and completely, given the complexity of the health care environment where health research is conducted. It also allows the following:

1) It is expected to provide greater confidence when findings from the structured observations and the in-depth interviews agree with each other, and the overall validity of the study is increased.
2) The quantitative and qualitative components naturally support each other in sampling, data collection and analysis, as both the components are carried out in the same study setting and the physicians interviewed are the same as the ones participating in the structured observation.
3) The study brings in the voice of the physician and the patient directly into the study and helps put context into the communication that happens in the clinical setting.

Flocke et al. (2002) have used a similar mixed-methods approach to develop a multilevel model to explain the level of shared decision-making in the provision of preventive services in primary care. Their study included observation of 2,881 patients visiting 131 primary care physicians and they used a combination of observation and qualitative analysis to derive their model. A schematic of what this research aims to identify is given below:

Figure 5: Schematic representation of research aims



The below is a summary of the whole research design:

Aim	Study factors that influence the process of informed consent for C-sections in public sector hospitals of Bangladesh		
Objectives	Examine communication between physicians and patients in labour situations	Study communication competence of physicians and patients in the context of emergency C-section	Understand how consent was facilitated in elective situations
Methods	Structured direct observation by 2 trained observers	Semi structured interview of physicians and primary emergency C-section patients	Semi structured interview of primary elective C-section patients
Tools	Standard operating procedures (SOP) checklist OPTION 5 instrument	Interview guide – physicians Interview guide – patients	Interview guide – patients
Data	Quantitative: Degree of adherence to SOP in 296 observations Extent of shared decision-making in the same 296 observations	Qualitative: 1) Communication competence of 16 physicians 2) Communication competence of 16 patients	Qualitative: Perception of the communication process of 16 elective C-section patients in the lead up to consent for elective C-section
Analysis: Integrated data analysis a) Quantifying adherence to SOP in labour and extent of involvement of patients in C-section decision-making in emergency C-section b) Complement quantitative data with unstated perceptions and concerns influencing the C-section consenting process gathered through interviews.			

Reflexivity and positionality:

There is a long-held belief that any preconceptions of the researcher on the research is undesirable. Scholars like Malterud (2001) have argued that preconceptions are inevitable and not always harmful. The following quotes of Malterud (2001) clearly establish this:

"A researcher's background and position will affect what they choose to investigate, the angle of investigation, the methods judged most adequate for this purpose, the findings considered most appropriate, and the framing and communication of conclusions" (Malterud, 2001, p. 483-484).

"*Preconceptions are not the same as bias, unless the researcher fails to mention them*" *(p. 484).*

Reflexivity is about a willingness to question one's own assumptions, their relation to societal power and how they shape the actions of the researcher (Salmon, Priestley, & Goven, 2017, p. 58). Jootun et al. (2009) also indicate, "Inclusion of a reflexive account increase the rigour of the research process" (p. 1). This sub-section is used to critically analyse the researcher's underlying assumption and positioning in relation to the involvement at various stages of research.

According to Dowling (2006), reflexivity in the research process can take four forms: 1) reflexivity aimed at sustaining objectivity, calling for a personal reflectivity; 2) epistemological reflexivity, where the researcher reflects upon various theoretical assumptions and perspectives; 3) reflexivity from a critical standpoint where the researcher examines the political and social constructions that inform the research process; and, 4) the feminist approach to reflexivity, which calls for the researcher to position and approach the research in a feminist experiential standpoint. These four forms have been used to discuss the reflexivity of the researcher.

Personal reflectivity:

One of the main methodological concerns that frequently emerge in this type of study is the degree to which the researcher can become personally involved in the research process and still retain a measure of objectivity. The role a researcher assumes in a research setting, his or her social identity and personality, will affect the relationship between the researcher and the participants, which may influence the outcome of research (Dowell et. al. 1994).

Reed and Procter (1995) have highlighted the debate on the researcher's relationship with the research environment, with its potential influence on the participants and data as an important factor in the inductive process. They consider that the researcher occupies one of three positions: outsider, hybrid or insider. The outsider is a researcher with no professional experience and a visitor to the area of study. The hybrid is a researcher who undertakes research into the practice area of other practitioners and is familiar with that research area. The insider is the actual practitioner-as-researcher researching their own and known colleagues' practice.

My first exposure to C-sections came about in 2014 when I studied C-section rates among Syrian refugees in Lebanon where attention was drawn to the United Nations high commissioner for refugees on the high costs associated with C-section for the agency. This was apart from the personal experience of having both my daughters delivered normally in 2001 and 2004 by the same obstetrician who chose to ignore relative indications for C-section and won over the trust of my wife and me in wanting to give normal vaginal delivery a fair chance. This was also an instance when both my wife and I posed full trust on the knowledge of our obstetrician who was kind, empathetic and available at all times. As someone with good familiarity in the research area, I enjoyed the "hybrid status" of a researcher at all times expecting during the data collection phase.

While I was involved in every stage of the project as the principal investigator, the one phase of the study where my involvement was the least was the actual data collection from the field. I had to rely on well-qualified and trained enumerators to do this, as there were two limitations I faced: language and gender. Bangla is freely spoken in Bangladesh. English-speaking skills are very limited; even professionals find it lot easier to articulate in Bangla. My limited Bangla skills forced me to look for others to collect data on my behalf. This might have had advantages, due to the elimination of my personal bias from the data collection process, and disadvantages with challenges in data immersion. Understanding this limitation and constant interaction with well-trained and experienced data collectors and understanding of context of each of the interview helped greatly in the data immersion process. The gender dimension is discussed below under "feminist reflexivity."

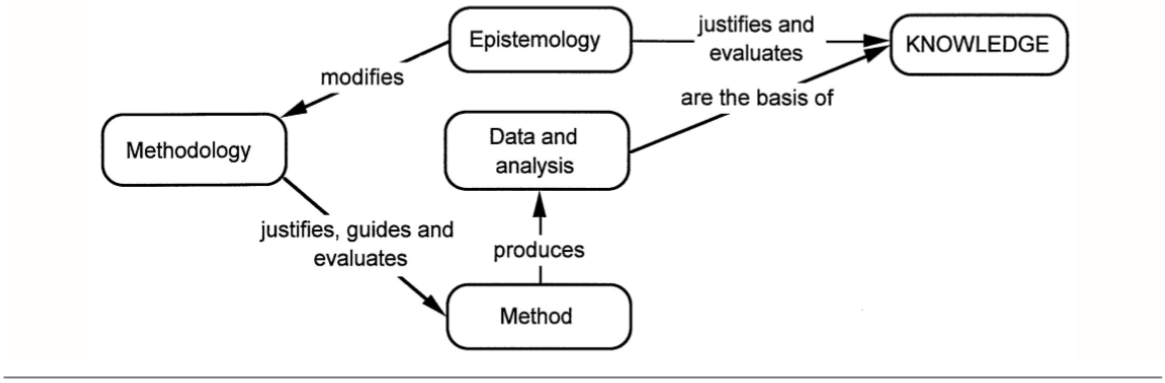
The motivation of the study goes beyond the doctorate. It stems from the aspiration to leave behind a product that will help the country and its people in the long run. The findings of the study will hopefully generate evidence that can be used by the different stakeholders to influence their respective constituencies and to hold each other mutually accountable.

Epistemological reflexivity:

Epistemological reflexivity is one where the researcher is required to ask such questions as: *How has the research question defined and limited what can be "found" and how could the research question have been investigated differently?* Epistemological reflexivity encourages the researcher to reflect upon the assumptions (about the world, about knowledge) that are made in the course of the research, and it helps the researcher think about the implications of such assumptions for the research and its findings.

My professional medical background involves considerable use of evidence to evaluate choices, such as diagnosis, treatment plans and prognosis. The evidence is invariably based around quantitative, numerical data. This background has developed within me a strong disposition towards the positivist paradigm with little awareness of the alternative interpretivist paradigm. The coursework as part of the doctorate course helped open the interpretivist paradigm to me. The mixed-methods study is reflective of the intersection between the long-held positivist paradigm and the new belief as an interpretivist. Limitation of the methodology and the methods have been spelled out in the methods chapter on page 61 and have been placed again in the context of discussion on page 145. The influence of the epistemological consideration on the methodology and the choice of methods is depicted below:

The Simple Relationship Between Epistemology, Methodology, and Method



Source: Carter, Little / Epistemologies, Methodologies, and Methods (2007)

Reflexivity from a critical standpoint:

Critical reflectivity is an examination of the political and social constructions that inform the research process (Koch and Harrington 1998). Critical reflexivity involves honesty and

relates to validity as well as addressing ethical and political questions encountered in the research process (Fontana 2004).

Professionally, I come into this research at three levels: as a physician myself, as a health manager involved in supporting health policy development and as an advocate of women's rights and fully subscribed to my organization's values. All three roles confer societal power and provide the opportunity to have preconceptions on the issue. Being the chief of health of a United Nations agency with significant respect and opportunity to dialogue with senior health system actors in the country, this role in influencing policy, driven by evidence, quality and cost, is likely to have predominated over the others.

The research was happening at a time when the issue was quite tense in Bangladesh when accusations were being exchanged between the physician community and the civil society on who/what was driving the C-sections (bdnews24, 2015). It was important for the research to have the buy-in of all stakeholders for it to be useful to resolve the debate and to generate evidence to guide policy and practice. The tools needed to be designed to demonstrate full openness in understanding the drivers and the processes demonstrate full transparency. Working as a team as part of the larger research and periodic opportunity to brief stakeholders helped maintain this transparency and to achieve political balance.

Reflexivity from a feminist standpoint:

As indicated above, one of the major reasons for me not being able to collect data from women was driven by male gender and the sensitivity of the issue at hand. Issues related to the gender-of-interviewer have been well documented in literature (Finch, 1984; Oakley, 1981). It has been argued that differences of gender identity between interviewers and interviewees may create difficulties in establishing rapport in the interview situation (Gilbert, 2008), and that gender identity is one of the issues that significantly influences interaction between the interviewer and interviewee (Kane and Macaulay, 1993).

Having the interviewer and interviewee be of the same gender identity has been a paramount focus in feminists' contentions (Finch, 1984; Oakley, 1981), although feminist scholars also acknowledge how race/ethnicity, social class and culture may influence the research relationship (Collins, 1991). Historically, research about women has predominantly been conducted by other women researchers (Berliner and Falen, 2008). This methodological concern of feminist research challenges the authenticity of research about women conducted

by male researchers because of different life experiences and knowledge (Maynard, 1994) and the perceived or actual power differential between male researchers and female participants (Jones, 1996). Besides this methodological concern, such an interview arrangement is also sensitive from political and religious considerations (Berliner and Falen, 2008).

In line with these arguments and influencing factors, male researchers traditionally have not been encouraged to conduct research about women (Berliner and Falen, 2008). Atsushi Takeda (2012) captures these challenges in his reflection on fieldwork conducted for a doctoral study on international marriage in Australia, which explored the migration and settlement experience of Japanese married migrant women.

In practical terms, the above sub-section outlines recognize how my own positionality from a personal, epistemological, critical and feminist point of view might have shaped the research process

The research design

The overall design of the research is based on interaction analysis and describing it in the social context in which it happens to unearth the possible drivers of the communication as observed in clinical settings. This overall approach provides a broad, encompassing view in understanding the factors influencing C-section decision-making in the public sector hospitals of Bangladesh.

The first objective of the research is to examine the communication between physicians and patients in the lead up to the decision-making in emergency caesarean sections.

Structured observations that could be quantified were used to meet this objective. Quantitative designs are rooted in the positivist belief that there are universal truths that can be identified using objective methods. The strength of quantitative methods lies in their ability to describe complex data sets in a simple manner (Herbert and Higgs, 2004). Quantitative methods have the added advantage of being able to describe simple relationships between variables. The main characteristics of the quantitative component of the study are the following:

- Data was gathered using structured research instruments (Maternal and Child Health Integrated Programme checklist and OPTION 5 instrument, which are explained in detail later).

- Sample size adequate to be representative of women who deliver in district hospitals of Bangladesh has been arrived at (306 observations in total).
- There are clearly defined underlying objective questions for which answers are sought (in what proportion of observed deliveries are specific components of the standard operating procedures followed? What is the extent to which physicians involve patients in decision-making on the mode of delivery?).
- Data are in the form of numbers and statistics to be arranged in tables, charts, figures, or other non-textual forms.

The overall aim of the quantitative research component is to enlist features in communication, enumerate them, and carry out statistical tests in an attempt to describe what has been observed. The tools to be used are explained in detail in the below sections.

In their paper outlining various approaches to measuring quality in therapeutic relationships, Greehalgh and Heath (2010) classify methods as "hard" and "soft." The hard methods help capture the tangibles and the soft methods, the intangibles in generating interpretations. The quantitative component of structured observations helps establish the hard data and the qualitative component helps to identify the intangibles and hence offer an interpretation to the observations.

The other options considered in establishing facts in physician-patient communication were patient satisfaction surveys and 'rate your relationship' surveys. They were not selected as the study settings were all rural with people who tend to have low education and belong to low wealth quintiles. Sitzia and Wood (1997) found very poor correlates of satisfaction with different defined groups (based on education, wealth, ethnicity). Interaction analysis using structured tools was the best available option to *examine the communication between physicians and patients in the lead up to the decision-making in emergency caesarean sections*.

The second and third objectives of the study are to study the communication competence of physicians and patients, and to understand the consenting process of primary C-sections (emergency and elective), respectively.

Qualitative research helps explore the social world. It involves the collection of textual material from conversation and observations, organising them and then interpreting them to give a meaning to the data collected. Qualitative research with an interpretivist paradigm approaches a social phenomenon in its natural context to understand, interpret, seek meaning, describe, illuminate and theorise (Herbert and Higgs, 2004). In-depth interviews remain one of

the most powerful qualitative tools (McCracken, 1988), and the most frequently used method (Tutty and Grinnel, 1996). Given the need to gain a deeper understanding of the social pressures under which the physician-patient communication happens and to understand their self-perceptions of their communication competence, an in-depth topic guide was developed.

The language used and words exchanged is the data in in-depth interviews (Patton, 1990). In in-depth interviews, the authority shifts from the researcher to the informant. The informants are the experts who are helping the clients (researchers). The ability of the researcher to shift this authority remains a key in the interview process (Spradley, 1979). In in-depth interviews, the researcher determines the degree of structure, and there is scope to understand better perspectives that cannot be captured by structured observations alone. The structure can vary anywhere between fully structured to unstructured. While the interviewer guides the structured format, the unstructured format is guided by the informant. Both have their advantages and disadvantages. Most of the in-depth interviews in this study use some pre-determined structure with the flexibility to deviate to obtain relevant information. This approach helps to avoid collection of irrelevant information and at the same time, not to lose out on the relevant ones (Goodman, 2001).

Teddlie and Tashakkori (2009) define a strand as a component of a study that covers the basic process of the research, which includes posing a question, collecting data, analysing it and interpreting results based on that. Four key decisions are involved in choosing a mixed-methods study design: 1) the level of interaction between the strands; 2) the relative priority; 3) the timing; and 4) the procedures for mixing the strands.

Given the nature of the topic and the complexity involved with physician-patient relationships, the study takes into consideration the following before arriving at the appropriate design:

- There is equal value for both the quantitative and qualitative components in the study.
- The training of the lead researcher as part of the professional doctorate programme to have both quantitative and qualitative skills.
- Availability of a team of researchers to support the lead researcher in data collection and data entry.

These factors justify the use of the convergent parallel design for the study. The convergent parallel design is the most well-known and most commonly used approach in mixed-methods research. The greatest advantage of this design is the opportunity it provides for obtaining

complementary data and triangulation of data from the two methods to obtain results about a single topic. The specific intent in utilizing this design stems from bringing together the relative strengths of the two methods and compensating for their non-overlapping relative weaknesses (sample, depth, and generalization, among others).

While use of the convergent parallel design makes intuitive sense, and while it is an efficient design and offers ease of data analysis, it is fraught with challenges too (Creswell and Clark, 2011). This includes the need for extra effort and expertise, the need for handling two data sets and interpreting each in a meaningful way, and most importantly being prepared to face a situation when the quantitative and qualitative results do not agree. The latter might need collection of additional data and needs to be factored in the study planning.

Inclusion and exclusion criteria:

Inclusion criteria for labour room observations

Selection of Facility (explained in detail below): One district level facility per division conducting at least 80 deliveries every month and offering C-sections (with at least 20 C-sections per month) was selected. This would give the necessary for the planned duration of stay in each facility.

Participants: All pregnant women (both primigravida and multigravida) who come to the labour room during the study period and were at least 18 years or older at the time,

Observed Cases of Labour: Cases of labour where the participant meets the eligibility criteria as described above were selected for observation (participants' interactions with physicians) during the study period of 2 weeks in each facility.

Inclusion criteria for in-depth interviews

a) Women who undergo (primary) emergency C-section: Women who undergo a primary emergency caesarean section (defined as those who come to the hospital in labour and are scheduled for their first time C-section subsequently) and consent for the interview.
b) Women who undergo (primary) elective C-section: Women who undergo elective caesarean section (defined as those who come to the hospital, not in labour and are already scheduled for their first time C-section at the time of admission in the hospital) and consent for the interview.
c) Physicians who perform C-section in the target hospitals and consent for the interview.

Exclusion criteria for in-depth interviews:

For qualitative interviews: All pregnancies with negative outcomes (defined as an illness of the mother, the baby, or both, or fatal outcomes for the mother, baby or both).nThe quantitative and qualitative parts are described in detail below:

Phase one of the research

The quantitative data collection formed phase one of the research and included structured observations of compliance to standard operating procedures in the conduct of deliveries and deliberations between physicians, pregnant women and available attendants in the context of labour situations.

Selection of Study facilities

Eight district hospitals (DHs) were selected from each administrative division of Bangladesh. District hospitals with high utilisation of delivery services (as demonstrated by hospital service data) were chosen for the study. Given that the country is divided into eight administrative divisions, choosing one district per division was expected to give maximum geographic spread. DHs with a high level of delivery service utilisation (80 deliveries per month with at least 20 C-sections) were initially chosen for the study. A total of 45 out of 64 district hospitals had more than 80 deliveries and 20 C-sections per month in 8 divisions. All the 45 district hospitals meeting the inclusion criteria were stratified according to the administrative divisions they belong to. Microsoft Excel was used to randomly select one district hospital per each of the administrative divisions. Eight district facilities were eventually selected through stratified randomisation, as indicated in Table 3 below.

Table 3: Name of the selected district hospitals in each administrative division

Administrative division	District Hospital
Mymensingh	Jamalpur District hospital
Rajshahi	Bogra District hospital
Chittagong	Noakhali District hospital
Khulna	Jessore District hospital
Dhaka	Rajbari District hospital
Rangpur	Panchghar District hospital
Sylhet	Moulovibazar District hospital
Barishal	Patuakhali District hospital

Data collection tools:

A structured observation checklist was developed and employed to assess both physicians and mothers during labour. This observation checklist was adopted from a validated observation tool developed by the Maternal and Child Health Integrated Program (MCHIP) and used in a similar observation study (Marya et al.,2012). The objective of this observation was to understand provider identified reasons for conducting C-sections during labour, the time and surrounding circumstances when the mode of delivery was decided upon, and the availability and adherence to standard operating procedures during labour situations. The observation checklist captured how the following were carried out in each of the deliveries observed:

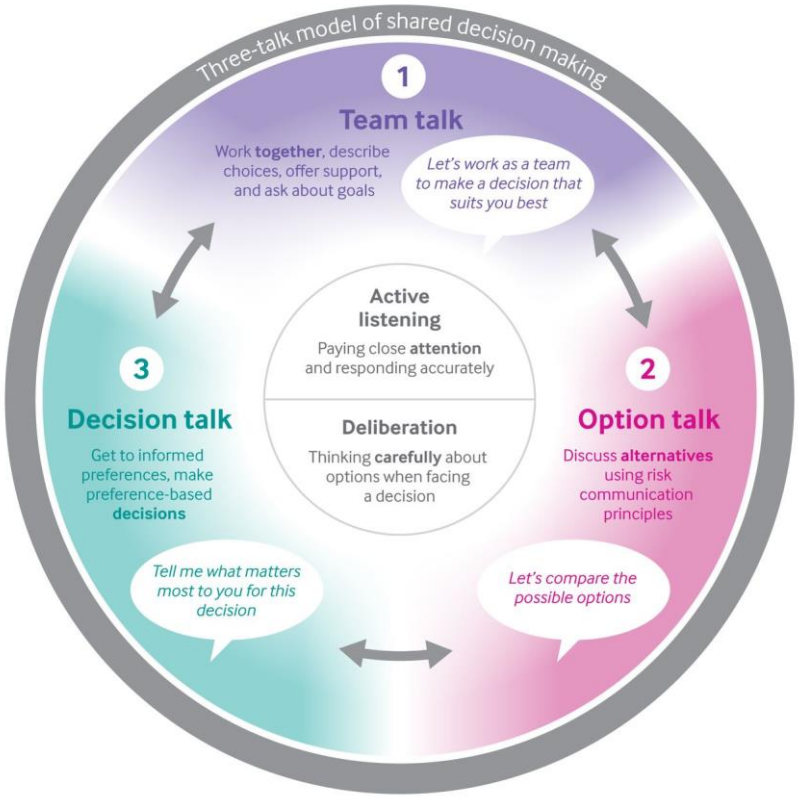
- Gathering of information about the pregnant woman
- Initial assessment of the pregnant woman
- Introduction and history taking
- Examination of the pregnant woman
- Intermittent observation of the first stage of labour depending on the presentation
- Continuous observation of second and third stage of labour where applicable
- Intrapartum care
- Decision-making for caesarean section at various points of observation

Information on patients' obstetric and labour history as recorded by the physician in the case records was recorded in particular to be able to categorise labour according to Robson's classification criteria (Robson, Hartigan and Murphy, 2013). This was needed to study the comparison of the categories of C-section with the expected/ accepted standard as put forth by Robson, Hartigan and Murphy (2013) and endorsed by the World Health Organization (WHO, 2015).

The communication between client and the service provider and the decision-making process for the mode of delivery was recorded using the OPTION 5 tool, which is a validated tool used in other similar studies. The OPTION 5 tool is specifically used to assess the extent to which health care providers involve patients in decision-making (Couet et al., 2015). The OPTION 5 instrument has been recommended and widely used in clinical settings where there is scope for shared decision-making. The tool is framed around the widely acclaimed three-talk model of shared decision-making (Elwyn et al., 2017).

The schematic representation of the three-talk model as proposed by Elwyn et al. (2017) is depicted below:

Figure 6: Glen Elwyn's three-talk model



The three-talk model outlines the types of talk in the shared decision-making process:

Team talk: Where patient and clinician develop a rapport and agree to work together by establishing common goals

Option talk: Different options in treatment are discussed where risks and benefits are discussed.

Decision talk: An informed decision is made incorporating the patient's preferences and the physician's experience.

The OPTION 5 tool has five items which capture the three-talk model as below:

ITEM 1 - Does the clinician present multiple options?

ITEM 2 - Does the clinician establish a partnership with the patient?

ITEM 3 - Are the options described?

ITEM 4 - Does the clinician ask the patient for their preferences?

ITEM 5 - Are the patients' preferences included in the decision about next steps?

Each of the items allows a rating of 0-4 (no effort to exemplary effort) in each of the items and computes a total score for each of the encounters. There will be an element of subjectivity in the use of the tool. This however is addressed by the OPTION 5 manual, which provides detailed and explicit directions in scoring. The manual also includes phrasing and language examples to aid scoring and to reduce subjectivity. Barr et al. (2015) conclude that OPTION 5 tool is a brief, theoretically grounded observer measure of shared decision-making with promising psychometric properties and a low burden on those who rate using it.

Recruitment of data collectors

For the quantitative purpose, a total of 17 research physicians (12 women and 5 men) were recruited for the larger study in early August 2018 from the existing researcher database of the International Centre for Diarrheal Diseases Research, Bangladesh (ICDDR, B). Nine physicians with maximum research experience were selected for this particular study. The research physicians were all qualified medical physicians with bachelor degrees in medicine and surgery. Three teams of three female physicians were exclusively deployed for the quantitative component of this study in each of the sites as it was culturally more acceptable to have women directly observe deliveries in the context of Bangladesh.

Training

The training for the decision-making process of C-section study was conducted in two phases:

Phase I: Initial training

The first phase of training was conducted with all recruited research physicians for two days in August 2018. The objective of this initial training was to orient them with the tools and data collection procedures, and the ethical issues surrounding them. The first day of the training session was dedicated to a brief introduction of the trainers and trainees; description of the quality standards set for the study and ethical concerns with particular emphasis on consent procedures at each stage of the data collection process, respecting refusal and picking non-verbal indications of distress and self-withdrawal, ensuring privacy and confidentiality, handling malpractice issues. The second day focussed on description of the study and overview of the tools. The data collection responsibilities/tasks were also discussed. In total, there were

two data collection tools to be filled out by the data collectors separately. Special attention was given to the OPTION 5 tool as this was a specialised tool with clear guidelines for use. In addition, the data collectors were also trained with the basic skills of quantitative data collection.

Phase II: Refresher training

The second phase of training was a refresher training conducted with all data collectors for one day in September 2018. This refreshers' training was arranged after a few days of the onset of data collection to resolve the problems faced by the data collectors.

Research coordination team

A central team of researchers led by the lead researcher coordinated and supervised the study. The central team consisted of one study physician, one quantitative researcher, a senior qualitative researcher and the lead researcher/ principal investigator. The team led by the lead researcher was responsible for local adaptation of the uniform protocols and tools, recruitment of staff, training of staff, planning of field implementation, coordination of the supply of logistics for the study and producing the deliverables on time.

Sample size

The available data from the management information system (MIS) of the Ministry of Health and Family Welfare of Bangladesh suggest that public hospitals have a 40% C-section rate and 40% of these are primary C-sections. If there are 80 births in one month in the facility, there would be 40 in each two-week period. It was expected that 16 of them would be C-sections and 40% of them would be primary C-sections (about six). It was further estimated that 50% of them would be elective C-sections (three) and 50% would be emergency C-sections (another three). All these assumptions were based on service statistics from the MIS. As all women in labour were supposed to be observed during the data collection period, the study expected to enrol at least 296 women in labour (40 cases in labour – three elective C-sections = 37 in each DH) for observation during the two-week data collection period. Finally, labour room admissions were 333 in the eight DHs during the study period. Out of the total 333, 306 of the observations resulted in positive outcome deliveries in the observed facilities. Twenty-seven of the women were either referred or chose to leave the facilities on their own during the

observation. The denominator for the various components of the observation checklist varied depending on the progression of labour, the C-section decision-making process and the time of departure of the woman from the observed facility.

Data collection

Data collectors were divided into three groups for data collection. Teams of three female physicians resided within the facility for no less than two weeks to complete the data collection. After completion of one round of data collection in four DHs, the teams then went for a second round of data collection in the remaining four DHs. The data collection plan was shared with the teams during the training session, and the team was informed in detail regarding who had to go where and at what time. To meet the expected sample size according to protocol, some teams stayed two to three additional days in some field sites. Data was collected in paper-based forms for each of the labour situations observed.

The observations happened in the labour room where there was an interaction between the physician and the pregnant woman and their companions. The researchers/observers had prior permission from the hospital authority and the physician to be present in the labour room. At the time of admission into the labour ward, the researchers sought permission from the pregnant woman to stay in the labour room for observation. They specifically were trained to ask, *"I am a researcher; are you happy for me to be in the room?"* The day after the delivery and before discharge, women were again asked: *"Do you mind consenting for me to use what I saw yesterday?"* If the woman did not consent or was not in a position to consent for the researchers to be present, the researchers were trained to leave the labour room and not to use any data that may have been collected (e.g., if the woman initially consented but changed her mind the next day). However, no such instances happened in this study.

In some instances, the observation happened in spells from when the physician arrived on the scene until a final decision on the mode of delivery had been arrived. Though an informed consent had been provided at the start, and even if consent had been provided for the researcher to be in the room, the researchers were fully aware of the right of the patient and physicians to ask the researcher to leave the scene any time. The researchers also were ready to withdraw voluntarily, picking verbal and non-verbal clues.

The numbers of women who were admitted to labour rooms in each of the facilities are detailed below:

Table 4: Number of labour admissions:

Facility	Number of labour admissions
Jamalpur District Hospital	27
Noakhali District Hospital	42
Bogra M. Ali Hospital	27
Jessore District Hospital	28
Moulovibazar District Hospital	67
Rajbari District Hospital	49
Patuakhali District Hospital	45
Panchagarh District Hospital	48
Total	**333**

Data analysis

Range and consistency checks were conducted on the data, and cleaned data were transferred into Stata® v13.0 for analysis. The analysis was done principally through descriptive statistics. Results are represented using appropriate numerical, tabular and graphical methods in the next section. The outcome variables for this study are the proportion of facilities meeting accredited standards and rating of communication between health care providers and patients on decision-making of C-section procedure.

Phase two of the research

The qualitative data collection formed the second phase of the study. Cegala, Coleman and Turner (1998) defined medical competence as falling into four clusters of competence behaviours: information giving, information verifying, information seeking, and socioemotional communication. The interview guide was developed to probe into these four domains of communication competence of the physicians and to further understand the social contexts under which this communication competency is shaped.

While direct observation is critical in understanding the communication competence of physicians and patients, assessment of the perceptions of communication is expected to play a crucial role in health communication research (Cegala, Coleman and Turner, 1998). Discrepancies between actual observations and self-perceptions of communication competence of both the physicians and the patients were common (R. L. Street, 1992; Makoul, Arntson and Schofield, 1995). Understanding the reasons and the sources for these differences is important to understand how communication happens in a clinical context and how to improve it.

Qualitative data was collected from physicians and from women who have delivered through primary caesarean section (both elective and emergency) through in-depth interviews for further exploration on communication competence of the physician and patient and the social context in which this competence thrives and communication happens. This is described in detail below.

Selection of Study facilities:

The study facilities were the same as in the quantitative study.

Data collection tools:

In-depth interviews were the method for data collection for the qualitative part, but for each of the key informant categories, separate tools were developed. The semi-structured interview guides were developed, drawing cues from available literature and initial feedback from the researchers who observed labour situations in the first phase of the study. The domains that were chosen to be explored are discussed further and the interview guides are annexed.

In-depth interviews with physicians:

An in-depth interview guide was developed for interviewing concerned physicians. These interviews explored the physicians' communication competence using the domains of the medical communication competence scale (information giving, information verifying, information seeking, and socioemotional communication) as the basis. Demographic questions were added (age, sex, professional experience as a range) to be able to put the communication competence in context. It is important to note that it was the same physicians who would perform both elective and emergency C-sections in the target facilities. Questions mostly focussed on communication competence in the context of emergency C-sections only, as only this information could be triangulated with the structured observations.

An appointment was sought with the physicians for an interview, and the interview was carried out at a time and location preferred by the physician. The manager of the facility was duly informed, and permission was obtained for the interview as part of the overall research. All interviews were recorded, transcribed in Bangla and translated in English subsequently.

In-depth interviews with recent mothers who delivered through primary C-section:

Mothers who had undergone primary C-sections were approached on the 3rd post-operative day by one of the research assistants once confirmed by the hospital director that she was medically fit for interview. Women who underwent primary C-section (defined as first time C-sections) were preferred, as there was near universality in the choice of elective C-sections for women with previous C-sections in Bangladesh, and the best opportunity for studying the reasons for C-section came from primary C-sections (Begum et al., 2017). Consent was obtained at this stage for the interview. The acceptance rate to participate in the interviews was 84.2% (32/38). Interviews were conducted in the hospital with the women in their most comfortable position. Prior appointments were sought. The mothers who had an adverse birth outcome were not interviewed. All interviews were recorded in Bangla and later transcribed in English.

Emergency C-section: Mothers who delivered through emergency C-sections in the target facilities took part in an in-depth interview in the form of an exit interview before they left the health facility. Demographic questions were added (age, sex, education and wealth as a range) to be able to put the communication competence in context. Sixteen mothers who underwent primary emergency C-sections were interviewed.

Elective C-section: Interviews with mothers who underwent elective C-sections explored details regarding the factors that influenced their mode of delivery and the communication leading to the consenting process for the elective procedure. Perceptions surrounding C-section surgery was also discussed during this time as well as a transparent discussion on whether they believed their own C-section was medically necessitated. Sixteen mothers who underwent primary elective C-sections were interviewed.

Recruitment of data collectors:

The qualitative team was a combination of six (6) researchers. The team was composed of two male and four female researchers. Five out of the six researchers were anthropologists, and one was a psychologist. They were recruited from the existing researchers. Teams of two members went to each of the sites and had one supervisor to assist when needed.

Training:

Training for the qualitative teams was for six working days. Training was planned to provide clear and common understanding to all researchers on research objectives, guidelines, ethics, informant types, field settings, and possible field problems with troubleshooting. Qualitative methodology, its tools and its correlation with researchers' inherent qualities were also discussed.

Training sessions were structured as open discussions where researchers were asked to share their knowledge; experience; perception regarding training contents first.

Facilitators conducted sessions with a discussion on topics relevant to the interviews to be conducted. Question-and-answer sessions were scheduled after every topic-based session. There was extensive discussion on research tools including guidelines where every participant went through each possible question and probing to have a better understanding and to internalise the issues to be raised in front of informants. Mock interviews were conducted after the discussions.

During mock interviews, researchers were asked to point out topics or any question in the guideline that they were feeling uncomfortable. Clarifications were provided, and mock interviews continued until the researchers felt confident. Consent forms were also explained in detail to the researchers.

Field testing of the tools was carried out in one district hospital which was not part of the study sites. While one researcher carried out the interview, another observed and provided feedback, each of the researchers carried out up to 11 key informant interviews involving physicians and recently delivered mothers.

Sample size:

Categorically, for the qualitative part, there were three types of informants. In-depth interviews were conducted with physicians who provide C-sections in the selected facilities. Client-side in-depth interviews were held with mothers recently delivered by emergency and elective caesarean sections. The below table provides the information on qualitative sample criteria and its number.

Table 5: Number of completed interview questionnaires:

Methods	Type of informants	Designation	Total
In-depth Interview (IDI)	Physician	Junior consultant	**16**
		Assistant register	
		Indoor medical officer	
		Medical officer	
		Residential surgeon	
	Mothers who had undergone primary emergency C-sections		**16**
	Mothers who had undergone primary elective C-sections		**16**
Total			**48**

Data analysis

Audio recorded in-depth interviews of both physicians and patients were transcribed verbatim into Bangla. After completion of transcription and translation into English, the analysis was done on line-by-line content, contextual and thematic analysis strategies. Both deductive and inductive coding techniques were combined.

After preparing some initial transcription, the next step was data sorting by a thorough reading of the transcripts according to a broad thematic pre-coded list. After careful line by line reading, the data was divided into meaningful analytical units using the pre-coded list selected before implementation of the qualitative component. New emergent codes were also accommodated to complete the picture. The codes were then analysed and sorted into categories to be able to detect consistent and over-arching themes. The themes were then grouped into context which helped interpret the results through a theoretical lens.

A quarter of the interviews were randomly selected and were independently coded by another trained qualitative researcher. The codes matched in the majority of instances; even when they did not, they were either synonymous or similar. No significant discrepancies in the coding was noted between the two researchers and hence there was no need to alter the coding done by the lead researcher.

Some data is presented verbatim to substantiate or to reflect more important views and ideas. During analysis, the atypical or diverse data were not disregarded and are presented based on the importance and linkage to the study objective

Ethical clearance and approvals

The study protocol was submitted for approval by institutional review boards recommended by ICDDR, B. Official approval was sought and achieved from the Ethical Review Committee (ERC) of ICDDR, B through its Research Administration Unit as a mandatory part of Institutional Review Board (IRB) approval. The IRB approved protocol number was 18018. This protocol was also reviewed and approved by the Research Ethics Approval Committee at the University of Bath.

Funding

The study was funded by the United Nations Population Fund where the researcher works. No other person from the funding agency had any role in study design, data collection, analysis, or in the writing-up of this thesis.

Informed consent process

Participants were informed about the objective of the study along with associated risks or benefits and were asked to participate voluntarily. Informed written consent was taken from the participants. They were also assured of confidentiality in the handling of the responses they provide and that they would only be identified with unique IDs in the study. Their data was kept in strict confidence and safe storage and was only available to the senior staff on the study. It was explained that participation was entirely voluntary and they had the right to withdraw from the study at any stage, even after initial consent. Written consent, which was indicated by a signature or thumbprint, was taken from the participants. Only consenting subjects were enrolled in the study. All interviews were conducted in the language preferred by the respondent.

Confidentiality

To ensure privacy and confidentiallity, all the interviews took place at locations chosen by respondents such that they had the independence to respond freely without fear of intimidation from peers or superiors (in the case of physicians).

In case of qualitative interviews, the researchers exhibited readiness to stop the interview at any time at the request of the physicians and patients and the researchers also

withdrew voluntarily from the interview if he/she saw the patient in any form of distress. In such cases, the wellness of the patient was checked a few hours afterward and any continuing distress was reported to the treating physician. Patients were given the choice to continue the interview if they were not in distress anymore.

The identity of the patients remained anonymous, as unique codes were pre-populated in the tabs provided to the researchers. Once the data was transferred to the central database, new codes were ascribed to the patient, and only the lead researcher knew how these two codes matched. Utmost care was taken to ensure that no identifying characteristics were made visible at any point of time. Even at the data collection stage, identity characteristics were collected as a range and not with precision to ensure anonymity and protection of the identity of the patient.

Hard copies of the study-related forms are stored in secured cabinets in a storage room under the supervision of the principal investigator. Only approved senior-level study personnel had access to these data. After completion of the study, identifier information was stripped, and only study IDs were used during analysis. Analyses present in this report are aggregate results without identifier information.

Limitations

Though the mixed-methods design tries to address the respective weaknesses of the quantitative and qualitative methods, there are still limitations to the study as indicated below:

1) Observation of the labour situations could have made the treating physician conscious of his/her behavior and lead to observation bias, which is an inherent weakness of direct observations as a means of data collection. It is expected that the altered behaviour would not have sustained over a long period, and it is very likely that the “normal” behaviour would have manifested soon. Nonetheless it is difficult to predict the impact this would have made on the study results.
2) The subjectivity of the researchers during the in-depth interviews cannot be controlled. Careful training and the conduct of interviews in pairs and subsequent discussions between the interviewers during transcriptions is likely to have mitigated the subjectivity to a considerable extent.
3) Since the audio recordings of the in-depth interviews were transcribed in Bangla and then translated to English, some language and key phrases could have been lost during translation. The fact that the transcribed material was checked again by the researchers

and the translation done by the researchers themselves, the loss to translation is likely to have been minimal.

4) Since more than one researcher was involved in data collection, variability between researchers is possibly influenced by their skill and subjectivity. Rigorous training, pilot testing and mentoring by the principal researcher are likely to have minimised this variability between researchers.

Chapter Four - Results

This section discusses the findings of the quantitative and qualitative phases of the study. The first sub-section outlines the quantitative findings drawing from the observation of labour situations in the eight target facilities.

Quantitative phase

Two tools were used to collect data for the quantitative phase: 1) the MCHIP structured clinical observation tool (USAID), and 2) the OPTION 5 shared decision-making tool. Both the tools are discussed in detail on pages 50-52 in the methods section. Given the global consensus on the need to group C-section cases into Robson's classification, the subset of C-section cases within all deliveries observed are also presented and compared with expected values.

The MCHIP tool elicits information about the health facility, the socio-demographic characteristics of the pregnant woman and the adherence to evidence-based standard operating procedures at each stage of labour until the baby is delivered. Though the tool gathers information on what happens at each stage of labour, presenting it as is risks narrating a rather biomedical story based on the observation overlooking complex human elements involved in decision-making.

Since the objective of the research revolves around the physician-patient communication dynamic and how this may be influenced by the environment in which it happens, the findings are grouped around the following: 1) characteristics of observations, 2) care through-out labour and childbirth, and 3) critical practices at each stage of the labour which would correspond to aiding companionship, respectful maternity care and communication between the physician and the pregnant women in labour and her relatives.

After laying out the compliance with evidence-based practices, the quantitative sub-section groups the cases observed using Robson's classification to obtain a sense of the obstetric pattern among those who ended up having a caesarean section. The quantitative section ends with the findings from the OPTION 5 tool assessing the degree of shared decision-making in the observed encounters and finding some pointers of association for future research. The results were analyzed for associations of statistical significance between relevant variables and the mode of delivery at appropriate sections.

I. Characteristics of observations

Table 6: Distribution of the number of observations in each of the district hospitals

Name of the hospital	Number n (%)
Bogra District hospital	27(8.1)
Jamalpur District hospital	27(8.1)
Jessore District hospital	28(8.4)
Moulovibazar District hospital	67(20.1)
Noakhali District hospital	42(12.6)
Panchghar District hospital	48(14.4)
Patuakhali District hospital	45(13.5)
Rajbari District hospital	49(14.7)
Total	**333 (100%)**

The above table describes the relative distribution of observations in each of the eight target hospitals where the study was conducted. The number of observations ranged from 27 in Bogra and Jamalpur district hospitals to 67 in Moulvibazar district hospital. The observations represent 100% of deliveries that happened in the facilities during the two weeks of stay of the investigators in each of the facilities.

The sample of facilities derives its representativeness from geography. As explained on page 49 under the methods section, these study facilities which met the minimum inclusion criteria were chosen at one per each of the eight administrative divisions of the country through a stratified random process. According to the Bangladesh Health System Review 2015, district hospitals in Bangladesh in general have a similar infrastructure, offer similar scope of services and usually attract people in the lower socio-economic strata (WHO, 2015). Given the similar nature of services, the socio-economic profile of people who attend such facilities and the random selection of the facilities, generalizability of the findings can be assured with reasonable certainty.

Adequacy of human resources, availability of specialists, and influence of the private sector in the close proximity of each of the facilities cannot be controlled and are beyond what the study could attempt and should be treated as a limitation.

Table 7: Age characteristics of pregnant women whose labour situations were observed

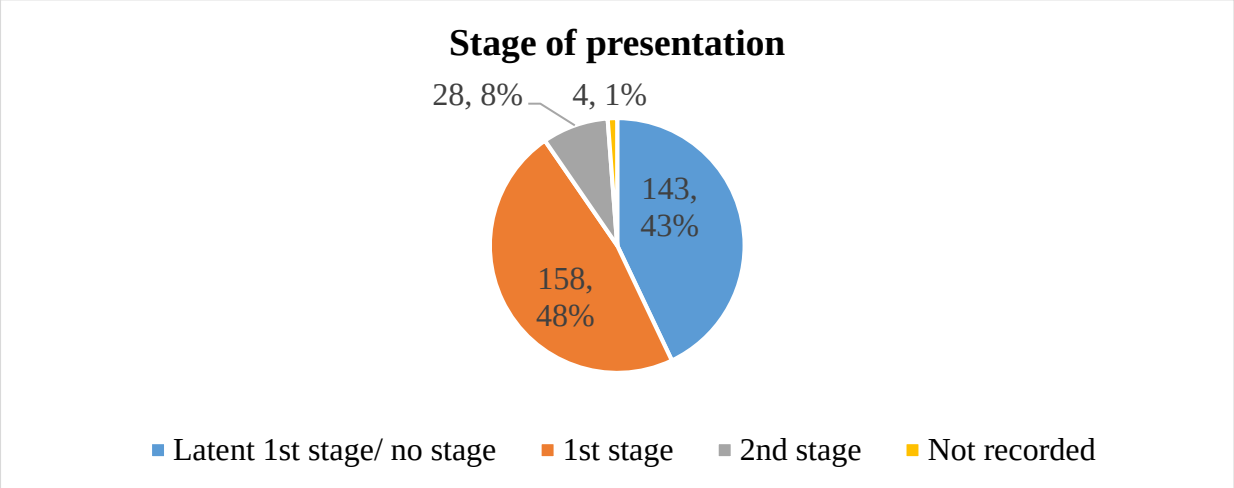
Age in years	Number n (%)
<=19	35(10.5)
20-24	191 (57.4)
25-29	77(23.1)
30-34	25(7.5)
>35	5(1.5)
Total	**333 (100%)**

The majority of the pregnant women whose labour situations were observed were in the age group of 20-24 (57.4%). There is no empirical metric available that can be used to measure the representativeness of this sample.

The 333 women whose observation began in the labour ward included 121 (36.3%) nulliparous women and 212 (63.7%) multiparous women. Nulliparous women were defined as those who have not had even one delivery before, and multiparous were those who have had one or more deliveries before the current one. This proportion is somewhat similar to what Begum et al. (2017) found in their population based study in Matlab, Bangladesh (41.3% nulliparous vs 58.6% multiparous).

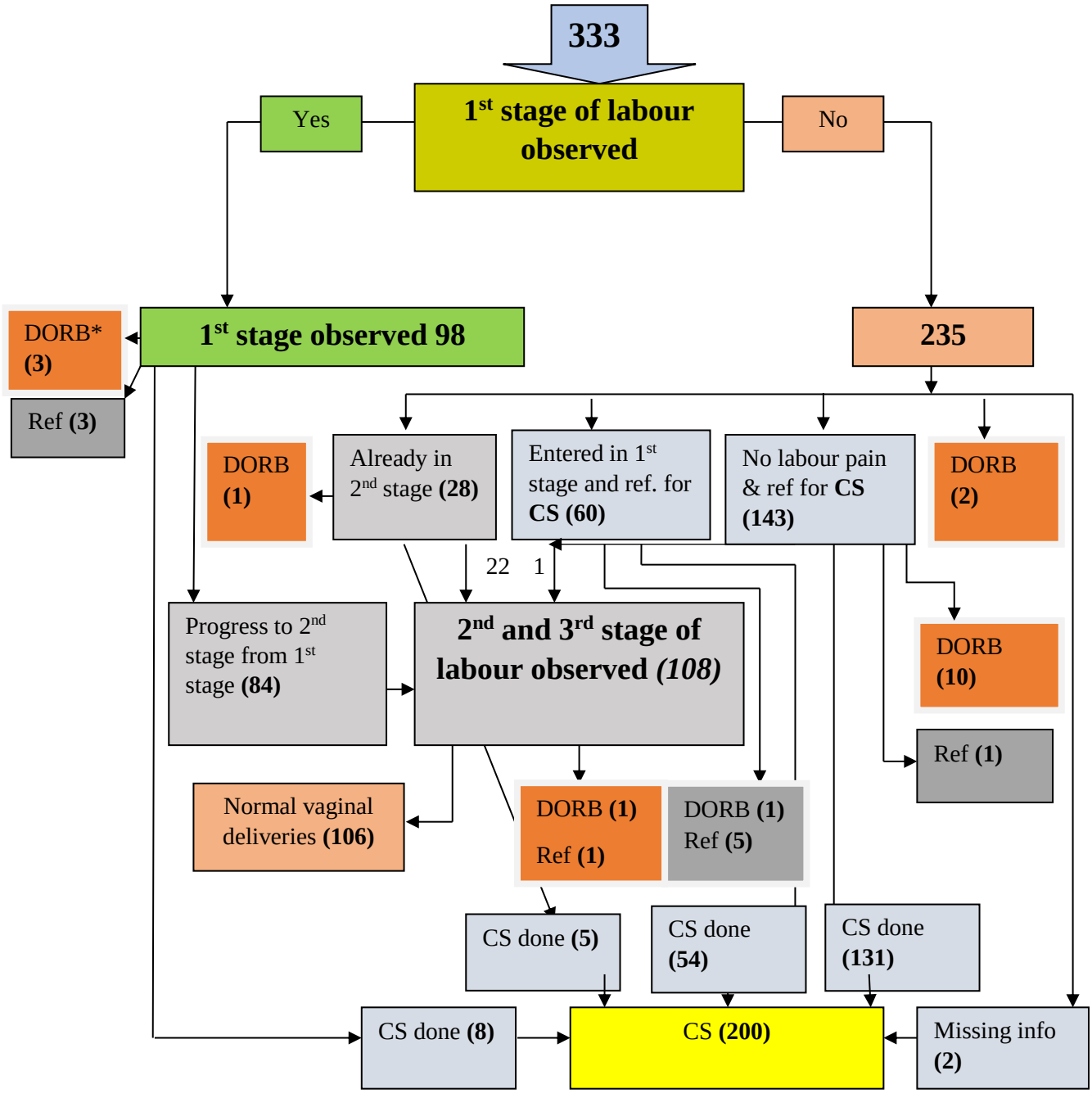
Figure 7: Stage of labour at the time of the presentation

The below figure depicts the stage of labour in which the women presented to the labour ward.



At the time of hospital admission and initial observation, the largest group of women were in the first stage of labour (48%) and followed by those who were either in their latent stage or not in labour (43%). It is important to clarify that there were several courses possible to take from the point of first observation. This is explained in Figure 8.

Figure 8: Explaining the denominators at the various stages of labour



*DORB – Discharge on medical bond or discharge against medical advice; CS – C section; Ref - Referred

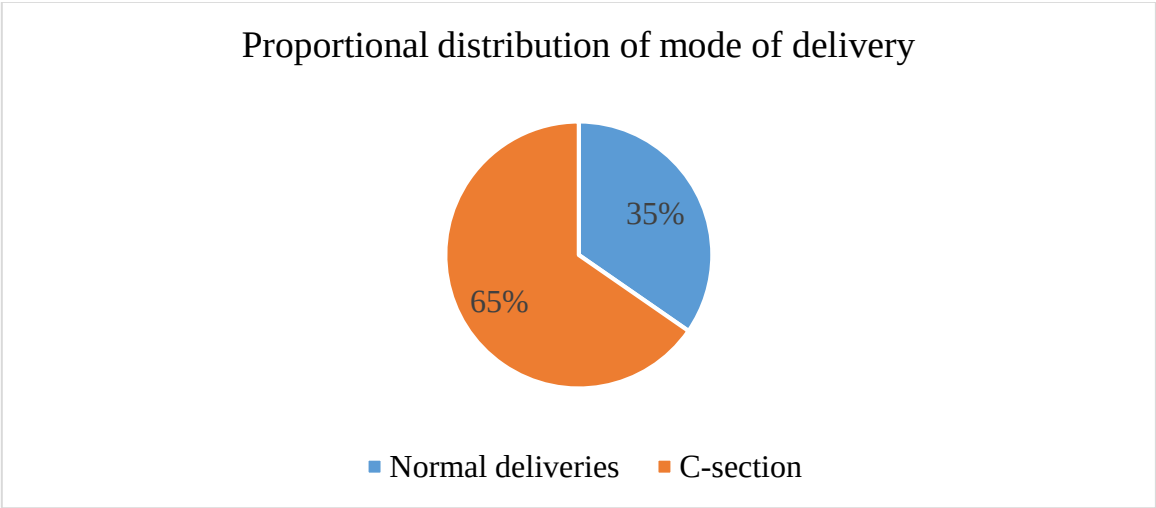
Most of the women arrived during day hours, as the official working hours of the district hospitals are from 0800 to 1430, and only emergencies are handled outside these hours (WHO, 2015). This is shown in Table 8.

Table 8: Time of arrival in the hospital

Time of arrival	n (%)
Morning(6:00-12:00)	206 (61.86)
Afternoon(12:01-17:00)	57 (17.12)
Evening(17:01-20:00)	25 (7.51)
Night(20:01-5:59)	45 (13.51)
Total	**333 (100.00)**

Out of the 333 initial observations, 10 women were referred and 17 of them were discharged on risk bond (DORB - left against medical advice) at various stages of labour. A total of 306 deliveries were completed in the target facilities during the study period. Two hundred of them were C-sections and 106 were normal vaginal deliveries. Ninety-eight women were observed in their first stage of labour and 108 during their second stage of labour. The denominators used for compliance with standard operating procedures during the first and the second stages are hence 98 and 108 respectively.

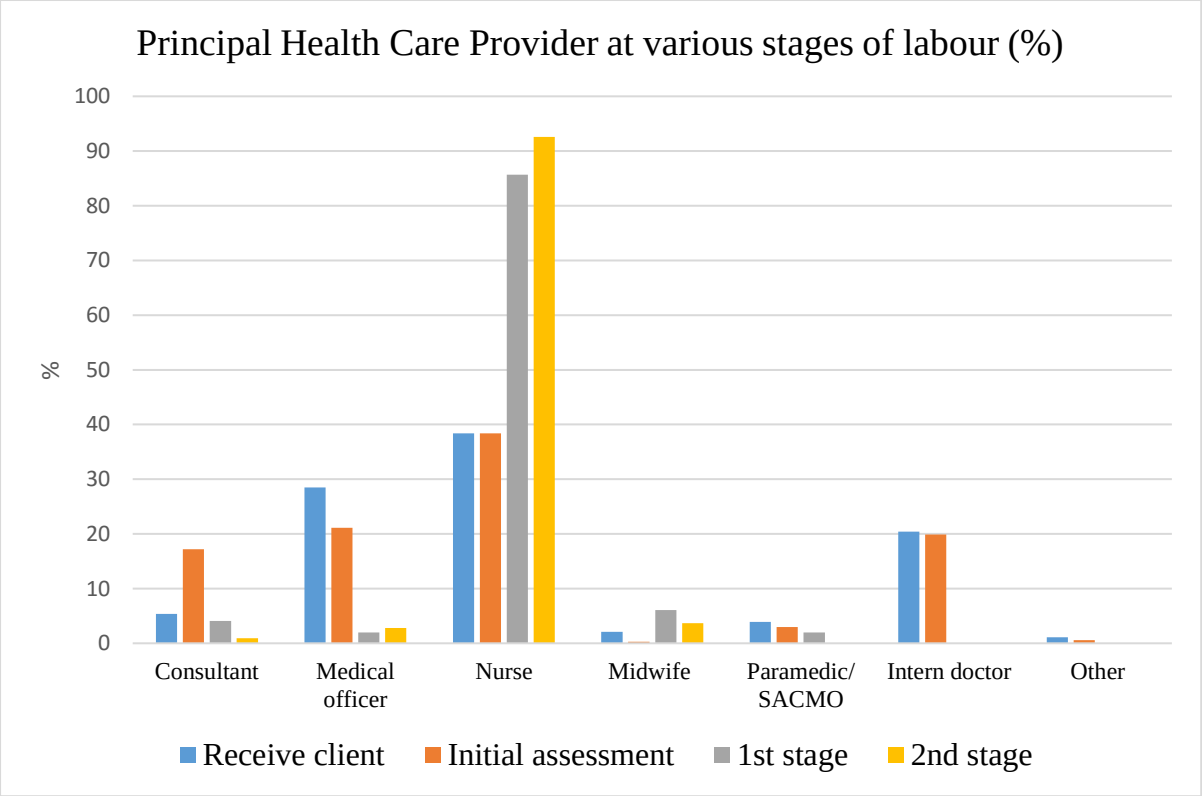
Figure 9: Proportion of C-sections among the deliveries happening during the study period in the eight facilities



The proportional distribution of mode of delivery in all cases that occurred during the study period in the target facilities is overwhelmingly in favour of C-sections. This intra-institutional C-section rate of 65% is similar to the figure cited for Bangladesh in the global analysis of C-section rates by Boerma et al. (2018).

The MCHIP observation tool records the principal health care provider, defined as the person spending the most time with the client during that point of contact. Figure 10 depicts the principal health care provider at various stages of labour starting from the entry into the health facility. The physicians came into contact with the women at various points of time, and the OPTION 5 tool was filled out based on the decision-making conversation only in the context of C-sections. In the context of normal vaginal deliveries, conversations involved nurses predominantly and in some instances a combination of physician and nurse.

Figure 10: Health care providers at various stages of labour



From the above, it is evident that the nurses seem to be spending the most time with the pregnant women at all stages of labour, including from the point of reception. The physicians are more present at the reception and initial assessment stages and less so during the active monitoring of 1st and 2nd stages of labour. The relative availability of nurses and physicians at varying hours of the day could explain this feature (Biswas et al., 2018). It is important at this stage to take note that midwifery is a new profession in Bangladesh, and only 1200 registered midwives are posted in the country and have barely integrated themselves into the health system with a skeletal presence in few health facilities across the country.

Through a detailed observational study in one district hospital in Bangladesh, Biswas et al. (2018) developed a human resource availability index based on the presence of specific health cadres during different times of the day. This average index for availability of nurses in obstetrics/gynecology/labour wards was 95.85% and 40.6% for physicians. This index was significantly low for physicians during evening and night hours (28.3 and 8.3 respectively when compared to 98.3 and 90 for nurses during the same time). This explains the higher availability of nurses round the clock and during all stages of labour.

The nurses tend to call the physicians as and when needed in other instances, and physicians in general visited the labour ward during daily rounds in the day and made decisions on the mode of delivery (Parveen, 2011).

The quantitative data was further analyzed to determine whether associations existed between a set of variables (selected based on the literature review) and the mode of delivery. The variables included physiologic characteristics and health system characteristics, which were recorded with certainty in the observation records.

Table 9: Association between mode of delivery and select characteristics

Characteristics		CS n(%)	NVD n(%)	P value
Age	<20	19(6.2)	14(4.5)	0.473
	20-30	143(46.7)	74(24)	
	>30	38(12.4)	18(5.9)	
Gravidity	Primi-gravida	61(56.0)	48(44.0)	0.01*
	Multigravida	139(70.6)	58(29.4)	
Time of arrival in the hospital	Morning(6:00-12:00)	131(42.8)	59(19.2)	0.021*
	Afternoon(12:01-17:00)	35(11.4)	17(5.6)	
	Evening(17:00-20:00)	16(5.2)	7(2.3)	
	Night(20:01-5:59)	18(5.9)	23(7.5)	
Who received the client first	Physicians	71(71.7)	28(28.3)	0.106
	Others	129(62.2)	78(37.7)	
Who performed the initial assessment	Physicians	87(75.6)	28(24.4)	0.004*
	Others	112(59.3)	77(40.7)	

There appears to be a statistically significant association between the mode of delivery and gravidity, the time of arrival of the pregnant woman in the hospital and who performed the initial assessment. These are pointers to consider for further analysis.

II. Care through-out labour and childbirth

Respectful maternity care:

Respectful maternity care is the right of every pregnant woman, and it is important that the health system can demonstrate this commitment to them. This show of commitment can be expected to increase the trust of the woman in the physician and the delivery team and to aid communication (The White Ribbon Alliance for Safe Motherhood, 2012). The White Ribbon Alliance for Safe Motherhood (2012) in its charter on maternal health identifies seven critical principles of maternity care and demands universal access to all women, including those who are often marginalized or those living with heightened vulnerability (namely adolescents, disabled, ethnic minorities, and people living with HIV, among others).

The rights are:

Every woman has the right to be free from harm and ill-treatment.

Every woman has the right to information, informed consent and refusal, and respect for her choices and preferences, including companionship during maternity care.

Every woman has the right to privacy and confidentiality.

Every woman has the right to be treated with dignity and respect.

Every woman has the right to equality, freedom from discrimination, and equitable care.

Every woman has the right to healthcare and to the highest attainable level of health.

Every woman has the right to liberty, autonomy, self-determination, and freedom from coercion.

Given that these are considered universal rights; the expectation is that 100% of women observed in the study receive such care. The below tables demonstrate the show of respectful maternity care by delineating specific behaviours associated with it.

Table 10a: Respectful maternity care at reception and initial assessment n=333

Measure		Number (%)
Greetings		107(32.3)
Checks woman's health/ ANC card		176(52.9)
Before the general examination, washes hands		3(0.9)
Before the vaginal examination, washes hands		3(1.3)
Wears sterile gloves for vaginal examination		216(94.3)
Audio privacy maintained		139(60.7)
Visual privacy maintained		83(36.2)
Woman's privacy maintained during interaction with the health worker	Always	56(16.9)
	Sometimes	247(74.6)
	Never	28(8.5)
	Missing information	2(6.1)

Table 10b: Respectful maternity care during the first stage of labour n=98

Measure	Number (%)
Audio privacy maintained during labour – separate room	58(59.2)
Visual privacy maintained during labour – curtain	51(52.0)
Encourages to consume fluid/food during labour	67(68.4)
Encourages the woman to ambulate, adopt different positions during labour	64(65.3)
Privacy maintained during the examination	16(36.4)

Table 10c: Respectful maternity care during the second and third stages of labour n=108

Measure	Number (%)
Audio privacy maintained during labour – separate room	68(63.0)
Visual privacy maintained during labour – curtain	70(64.8)

Apart from the use of sterile gloves (94.3%), none of the other practices is of high proportions to demonstrate the commitment of the health system to ensure that 100% of pregnant woman receive respectful maternity care.

Companionship

Companionship during labour is an important evidence-based practice and has been found to have some association with higher chances of spontaneous vaginal delivery, to reduce the risk of perineal trauma, to decrease the duration of labour and to improve the overall birthing experience (WHO, 2017).

Among the initial 333 observations, in only 80 (24.2%) of them, the provider asked if the woman would like to have a companion by her side. During the 2nd stage of labour, the provider in 54/108 (50%) instances asked if the woman would like to have a companion by her side, and in 28/108 (25.9%) situations, the woman requested the service provider to allow a companion to be by her side.

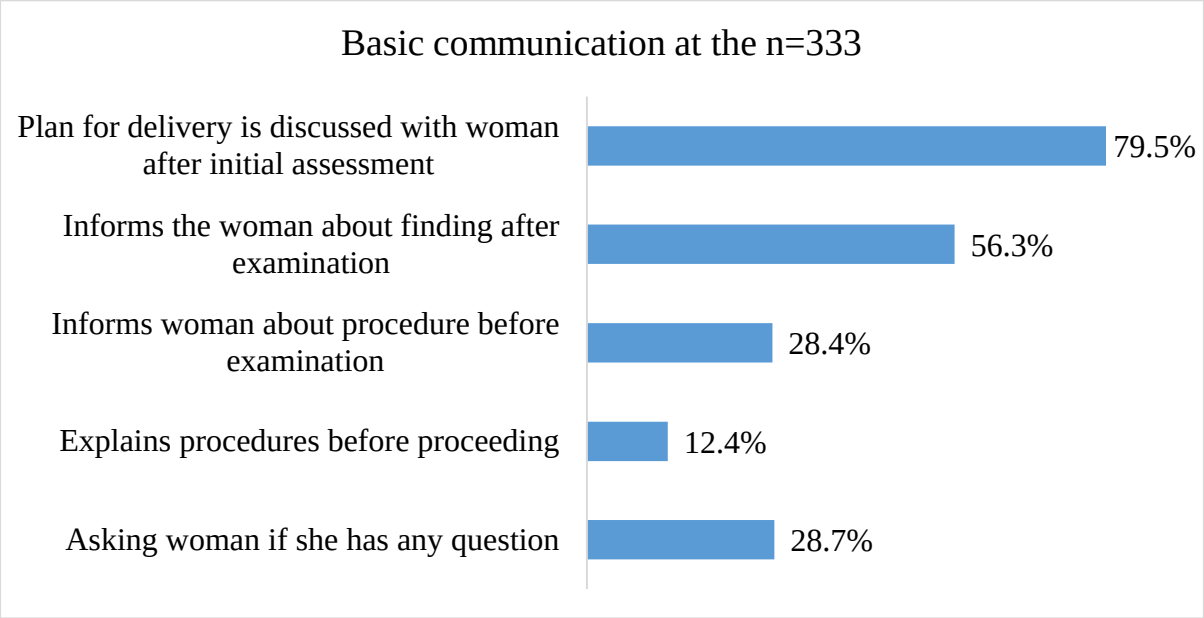
It seems the offer for companionship is not universal, and more encouragement happens during the later stages of labour, by which time the mode of delivery has largely been decided. Available data does not allow us to determine if a companion was already present during the assessment; hence, this question might have been asked only in a smaller proportion. Though this is a possibility, the available evidence in Bangladesh on the receptiveness of nurses to allow companions in labour is not universal (Tasnim, 2010).

Even if a companion was present, the health care provider could not make an assumption that the one present was the preferred companion. The health care provider is always required to check on the choice of the pregnant woman as to her companion (The White Ribbon Alliance for Safe Motherhood, 2012).

Basic Communication:

The quantitative tool is designed to capture some basic communication that happens between the pregnant woman and the provider. WHO (2018) in its recommendations on intrapartum care for a positive childbirth experience identifies a basic package of actions that would constitute effective communication in labour situations. Against a benchmark of 100% achievement of such actions to be exhibited by health care providers, Figure 11 looks at the basic communication patterns at the time of reception/initial assessment at the labour ward in the study.

Figure 11: Basic communication at the time of reception and initial assessment



While the plan for delivery is discussed after the initial assessment with 80% of women, in less than 30% of instances, women were asked if they had any questions for the provider.

Table 11: Communication during the 1st stage of labour (n=98)

Communication	Number (%)
Explains what will happen during labour	27(27.6)
Praises, encourages and reassures her	53(54.1)
Gives her information on the process and progress of her labour	23(23.5)
Plan for delivery discussed with mother during labour	87(88.8)
Plan for delivery discussed with family members/relatives	70(71.4)
Ask mother/ family members about their preferred mode of delivery	26(26.5)
Tells the woman who is going to conduct the labour	35(35.7)

Among all the parameters used for assessment, it is only the plan for delivery that is discussed in the highest proportion with pregnant women and their families (88.8%). All the others are sub-optimal when compared by the absolute minimum standards set by WHO (2018) for a positive childbirth experience.

As the labour progresses to the second and third stages, and in line with the WHO standards (2018), the women should be asked her preferred position for delivery. This was done in only 16% of the women who progressed to the second stage of labour.

Figure 12: Enquiry on the choice of delivery position (n=108)

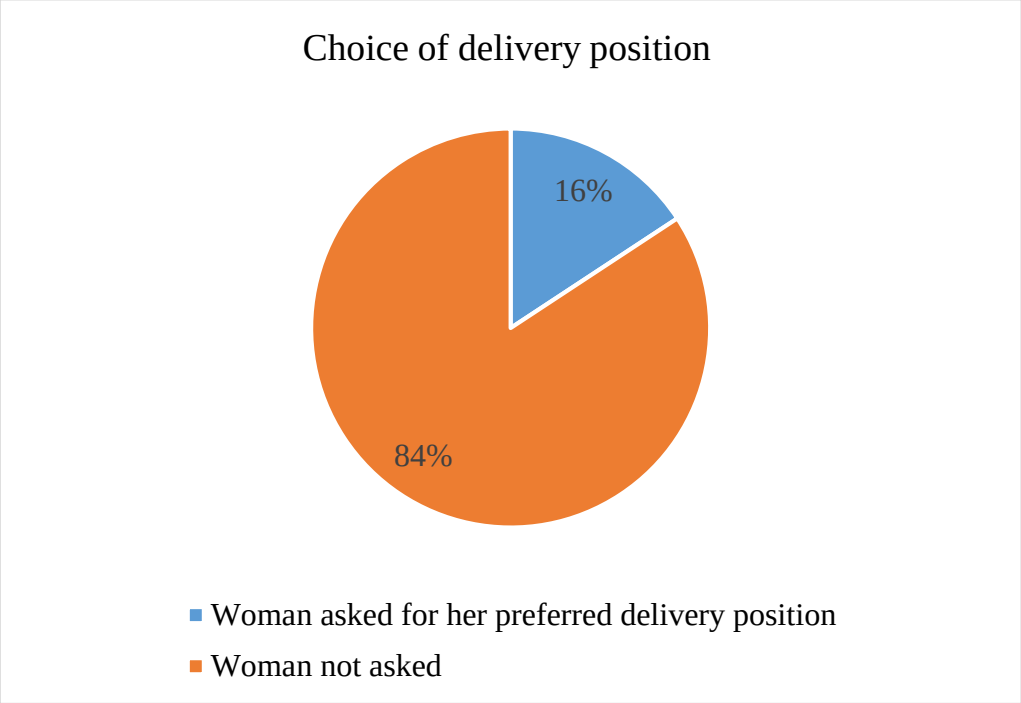


Table 12: Association between mode of delivery and select variables under communication characteristics

Characteristics		CS n (%)	NVD n (%)	P value
Women were greeted		68(22.2)	31(10.1)	0.411
Asked women if she had any question		62(20.3)	20(6.5)	0.024
Encouraged woman to have a support person during birth		31(10.1)	42(13.7)	0.000*
Audio privacy was maintained		78(25.5)	54(17.6)	0.057
Visual privacy was maintained		37(12.1)	41(13.4)	0.145
Plan for delivery was discussed		160(52.3)	85(27.8)	0.908
Main health care provider (1st stage)	MBBS physician	2(50.0)	2(50.0)	0.003*
	Non-physician	6(7.0))	80(93.0)	
Plan of delivery discussed with mother		5(1.6)	74(24.1)	0.022*
Plan of delivery discussed with family members		6(2.0)	56(18.3)	0.696
Asked mother/family member about their preferred mode of delivery		3(1.0)	19(6.2)	0.368
Explained what will happen during labour		2(0.6)	21(6.9)	0.970
Explained procedures before proceeding		1(0.3)	17(5.6)	0.548

Labour situations where women were encouraged to have a support person during birth, plan for delivery was discussed with her and the 1st stage of labour managed by a nurse or a midwife, there was a statistically significant difference in the eventual mode of delivery. These factors are similar to what exists in the literature (Betran et al., 2018).

Critical practices at each stage of labour:

There are globally prescribed evidence-based-practices in labour, which are adopted by countries in their local standards and guidelines. Two critical global references exist: *Every Mother, Every Newborn Quality Improvement Guide* (UNICEF, 2016) and the WHO *Standards for Facility-Based Maternal And Newborn Care Around the Time of Childbirth* (WHO,2016). Both these reference documents complement each other and prescribe to evidence-based standards. The Obstetrical and Gynaecological Society of Bangladesh (OGSB) has developed its labour room management protocol for health facilities (2016-2018) based on these global standards and is the basis for the suggested practices below (OGSB, 2018).

Table 13: Critical practices during the 1st stage of labour

Procedure		**Total N=98**
		n (%)
The frequency of examination of women in the labour ward	Half-hourly	27(29.4)
	Hourly	16(17.4)
	2-4 hour	33(35.9)
	>4 hour	16(17.4)
	Not examined	6(6.1)
Timeliness of filling partographs after examination	Never	67(72.8)
	Sometimes	21(22.8)
	After each examination	4(4.3)
	Not examined	6(6.1)
Administration of drugs for pain relief		25(25.5)

OGSB (2018) recommends a digital examination every four hours while a woman is in labour as a general recommendation. While the frequency of examination is every two to four hours in 35.9% of the cases, in most cases they seem to be done more frequently, which may be unnecessary and discomforting to the woman in labour. Partographs were poorly filled out, and pain relief was provided to a small proportion of women only; though it is difficult to say what proportion of women actually asked for it or were offered. Non-evidence-based practices such as providing routine enema seem to be still practised, though in a small proportion of

cases. The below table highlights the frequency of select practices during the second and third stages of labour.

Table 14: Critical practices during the 2nd stage of labour

Procedure	Total N=98
	n (%)
Epidural given for delivery	0.0
Assisted deliveries	0.0
Performs episiotomy	33(30.6)

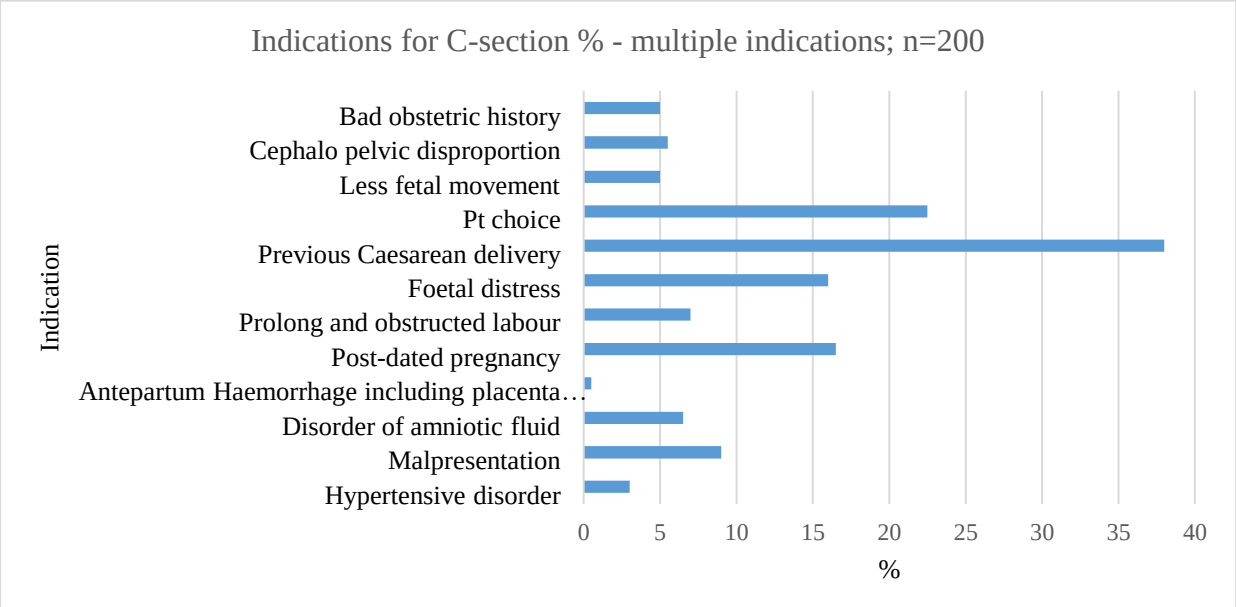
Epidural analgesia can significantly reduce women's fear of labour pain and is an evidence-based option (WHO, 2018) that was not used in any of the observations. While it is difficult to comment on the use of episiotomy based on the above figure alone, data from the study suggests that in only 11 of the 33 instances (1/3), an explanation was given to the pregnant woman on why the procedure was performed. Consent was obtained in only two instances.

Data collected on the C-section births were further analysed to obtain further clues on the decision-making dynamic and is presented in the sub-section below:

C-section births:

Figure 13 lists the indications for undergoing C-sections as mentioned in the case records of each of the women who were posted for a C-section**.**

Figure 13: Indications for C-sections



While previous C-section is cited as the most common indication, patient choice is cited as the second most common reason (22.5% cases). Relative indications such as foetal distress and post-dated pregnancy follow this closely as common indication for C-section in the cases observed during the study. Apart from the overt reference to patient preference as an indication, the rest of the indications and their ranking match with the findings of Begum et al. (2017) from their study in Matlab, Bangladesh. The magnitude of what could be considered as C-sections without proper medical indications can be better understood by using Robson's classification and comparing it with a standard population is pages 79-82. This is explained further subsequently.

The study looked closely at the consenting process as this was the tangible end to the decision-making process. The below table helps better understand some of the dynamics involved in this final component of decision-making:

Table 15: C-section decision-making and consent taking N=200

C-section related discussion/ decision		n (%)
The decision of C-section was informed to the woman		196(96.1)
Reason discussed with relatives/ family members		157(77.0)
Written consent was taken		194(97.0)
Who gave written consent	Women herself	29(14.5)
	Husband	119(59.5)
	Father/mother	24(12.0)
	Father-in-law/mother-in-law	5(2.5)
	Bother-in-law	3(1.5)
	Sister	5(2.5)

It is observed that written consent is obtained in almost all cases and husbands are called upon in most cases to provide written consent. This could either mean that the power to make a decision rests in most cases with the man, or they are simply more literate and are able to sign on the consent form. While the study set out with the objective to examine the physician-patient communication, it is evident that there were several dyads of communication, including the physician-pregnant woman; nurse-pregnant woman; nurse-physician; physician-husband; nurse-husband and husband-pregnant wife involved in the C-section decision-making/consenting process. This was documented by the researchers in the 'notes' section of their observation tool.

Robson's classification

Robson's classification is a standardized system to monitor and compare C-section rates at facility level in a reliable, consistent and action-oriented manner (WHO, 2015). To date, this method of classification remains as the most robust way of classifying C-sections and is considered simple, robust, reproducible, clinically relevant and prospective (WHO, 2017). As a way of promoting the tool and to make it easy for countries to use it, the WHO developed an implementation guide and an example of interpretation. The WHO's implementation guide was studiously followed in classifying cases in this study. The 10 Robson groups are classified after the collection of data on the following variables in each of the woman who underwent C-section: parity, previous C-section, onset of labour, number of fetuses, gestational age, and fetal presentation. The Robson's grouping is presented in table 16 on page 79.

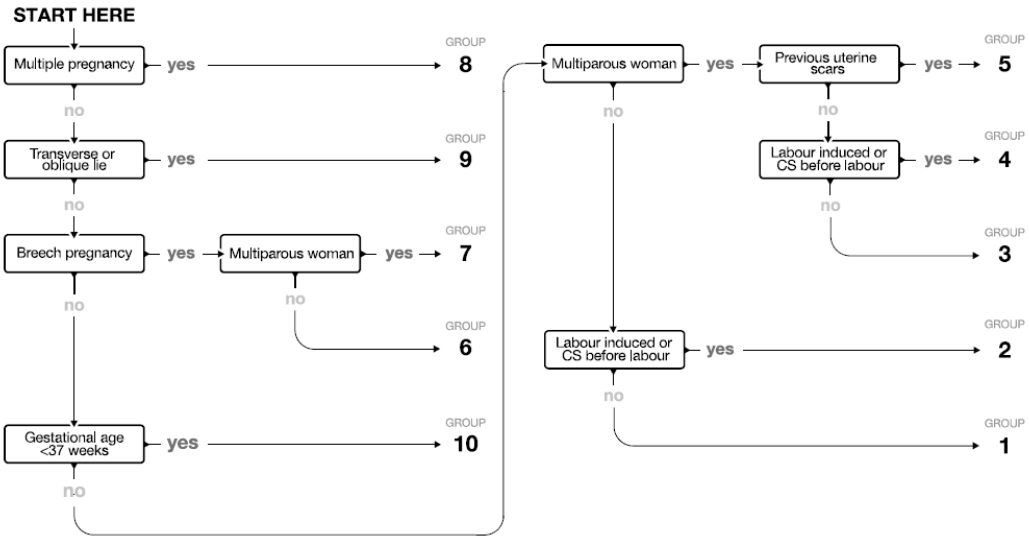
Table 16: Robson's classification:

Group ***(Column 1)***	Number of CS in the group ***Column 2***	Total women ***Column 3***	Group Size (%) ***Column 4***	Group CS rate (%) ***Column 5***	Absolute Group CS rate (%) ***Column 6***	Relative Group contribution to overall CS (%) ***Column 7***
1. Nulliparous, single pregnancy, cephalic presentation, ≥ 37 weeks, spontaneous labour	11	57	18.6	19.3	3.6	5.5
2. Nulliparous, single pregnancy, cephalic presentation, ≥ 37 weeks, either had induced labour or delivered by CS before labour	53	54	17.6	98.1	17.3	26.5
3. Multiparous, single pregnancy, cephalic presentation, ≥ 37 weeks, spontaneous labour, without a previous uterine scar	7	44	14.3	16.0	2.3	3.5
4. Multiparous, single pregnancy, cephalic presentation, ≥ 37 weeks, without a previous uterine scar, either had induced labour or delivered by CS before labour	32	35	11.4	91.4	10.4	16.0
5. Multiparous, single pregnancy, cephalic presentation, ≥ 37 weeks with at least one previous uterine scar	72	77	25.2	93.5	23.5	36.0
6. Nulliparous with single breech presentation	5	6	2.0	83.3	1.6	2.5
7. Multiparous with single breech presentation with a previous uterine scar	6	8	2.6	75.0	2.0	3.0
8. Women with multiple pregnancies, including women with a uterine scar	1	2	0.7	50.0	0.3	0.5
9. Single pregnancy with transverse or oblique lie including women with a previous uterine scar	1	1	0.3	100.0	0.3	0.5
10. Single pregnancy, cephalic, ≤36 weeks, including women with a previous scar	12	22	7.2	54.5	4.0	6.0
Total	200	306	100	--	65.4	100

The data collected in each instance was manually entered to identify the group to which that particular C-section belonged to. The process of grouping is explained with the below flow chart. Though the data for the 200 cases come from 8 different facilities, they are homogenous in their infrastructure (secondary level facilities); have similar populations regarding case-mix and have similar clinical protocols to follow, though data collected from the study seems to suggest they hardly follow them.

While interpreting the Robson's classification, the WHO (2017) requires three due diligence steps to be undertaken to feel confident about the analysis: 1) assessment of the quality of data; 2) assessment of the type of obstetric population; and 3) assessment of C-section rates.

Figure 14: Robson classification – A flow chart



Source: Adapted from Nassar LF, Sancho HD. Instrucción de Robson . v.0.1-1. 2015/06/08. Caja Costarricense de Seguro Social)

The WHO implementation guide (2017) makes available for use a specific reference group in assessing data quality and for making comparisons. This group, referred to as the *WHO MULTI-COUNTRY SURVEY ON MATERNAL AND NEWBORN HEALTH* (WHO MCS), has been determined to have low C-section rates and low intrapartum perinatal mortality. This reference group, obtained from analysing data from 42,637 women from 66 health facilities in 22 countries, is to be used for comparison purposes only and is not to be taken as a global standard. Robson, based on his international experience since 1990, has also put forward guideline reference values. Both sources are available for comparison purposes. Quality of data as per the standards recommended in both the WHO implementation guide (2017) and in Robson's reference values is given below:

Table 17: Comparison of study dataset against standard reference values provided by Robson and WHO MCS

Step	Robson interpretation	Example MCS population	Conclusion
Total of columns 2 and 3	Should match with the number of CS and normal deliveries	N/A	Matches in the study
Size of Group 9	Should be <1%	0.4%	0.3% in the study
CS rate of Group 9	Should be 100%	88.6%	100% in the study

The above table confirms that the collection of data for classifying based on Robson's criteria is quite robust as the values obtained in the study are similar either to the Robson guideline value or the WHO MCS. The obstetric type of the study population is assessed further and compared with the available two sources of standards.

Table 18: Obstetric type of population

Step	**Robson guideline**	**Example MCS population**	**Study finding**
Size of groups 1 and 2 (nulliparous)	35-42%	38.1%	36.2%
Size of groups 3 and 4 (multiparous; no previous CS)	Usually 30%	46.5%	25.7%
Size of group 5 (multiparous; previous CS)	Usually half of the total CS rate and in settings with low overall CS, usually <10%	7.2%	25.2%
Size of groups 6 and 7 (breech)	Should be 3-4%	2.7%	4.6%
Size of group 8 (multiples)	Should be 1.5-2%	0.9%	0.7%
Size of group 10 (pre-term)	Should be less than 5% in most normal risk settings	4.2%	7.2%
Ratio of size of groups 1 and 2	>2	3.3	1.06
Ratio of size of groups 3 and 4	>2	6.3	1.25
Ratio of size of groups 6 and 7	Usually >2	0.8	0.76

The sizes of groups 1-4 are largely within limits suggested by Robson and the WHO MCS. The size of group 5 (multiparous women with a history of the previous C-section) is high. Group 5, according to Robson, is usually related to the overall C-section rate in the population. This implies high C-section rates in the past years. In places with high C-section rates, the size of the group is expected to be over 15%, and the study finds that the rate is 25.2% among the cases observed.

The smaller proportion of group 8 (multiple pregnancies) could be explained by the possible increased tendency to refer multiple pregnancies to tertiary institutions. The high proportion in group 10 (pre-term) could imply either a high risk of pre-term births in the population or provider-initiated pre-labour C-sections for fetal growth restriction, pre-eclampsia or other medical complications. Since the data quality has been assured for the study, the possible explanation for the low ratios between groups 1 and 2 and groups 3 and 4 is the high pre-labour C-section rates. One hundred and thirty-one out of the two hundred of the C-sections happening pre-labour or during the latent phase explains this ratio observed in the study. The below table assessed the C-section rates for the various groups under Robson's classification.

Table 19: Assessing C-section rates of the study with comparison groups:

Robson's groups	**Robson guideline**	**Example MCS population**	**Study finding**
1	<10% achievable	9.8%	19.3%
2	20-35%	39.9%	98.1%
3	<=3%	3.0%	16%
4	Not higher than 15%	23.7%	91.4%
5	50-60%	74.4%	93.5%
8	60%	57.7%	50%
10	30%	25.1%	54.5%
Relative contribution of groups 1,2 and 5 to the overall C-section rate	66%	63.7%	68%
Absolute contribution of group 5 to the overall C-section rate		58%	23.5%

The above table demonstrates that the study findings do not tally with settings that have low C-section rates and still maintain very good perinatal outcomes. The C-section rates among groups 2 and 4, i.e., C-sections performed before labour in nulliparous and multiparous women without a previous history of caesarean section, raise concern and will need further research to understand the dynamics behind these groups.

Shared decision-making:

One of the principal objectives of the study is to assess the shared decision-making in C-sections. The OPTION 5 tool scores the degree of team talk, options talk and decision talk between the service provider and the pregnant women in the labour setting. Each observation is given a score of 0-20 and then multiplied by five to give a score on 100. Table 20 gives the frequency of the range of scores over the 306 observations. The OPTION 5 tool is detailed in the methods section pages 50-52.

Table 20: The shared decision-making effort as assessed by the OPTION 5 tool:

Overall score range	**Number of observations N=306**	**Cumulative proportions**
	n (%)	%
0	37(12.1%)	12.1%
5-25	246(80.4%)	92.5%
30-50	22(7.2%)	99.8%
55-60	1(0.3)	100%
65-100	0(0.0)	-
Total	306 (100%)	

The tool has five items where the observer scores based on the live conversation that happens between the health care provider and the pregnant woman/the family members when the decision on the mode of delivery is agreed. A score of 100 denotes exemplary effort in the shared decision-making process and a score of zero is the other side of the spectrum that implies no effort at all, and values in between should be interpreted within this range based on where it falls. The guide to scoring is as below:

Score	Description
0=No effort	Zero effort observed
1= Minimal effort	The effort to communicate could be implied or interpreted
2=Moderate effort	Basic phrases or sentences used
3=Skilled effort	Substantive phrases or sentences used
4=Exemplary effort	Clear accurate communication methods used

Nearly 100% (99.8%) of the observations scored less than 50% of the maximum possible effort and 92.5% of them less than 25% of the effort needed. Twelve percent of observations identified no effort at all in any of the items studied.

The overall mean score with OPTION 5 is 2.98 out of a maximum score of 20 or 14.9 out of 100. This should be considered a low score in shared decision-making when compared to the mean obtained by Couet et al. (2015) in their systematic review of 33 eligible studies using the Option12 instrument, the predecessor of the OPTION 5 instrument but with similar scoring and psychometric properties (Barr et al., 2015). Elwyn et al. (2017) found a mean score of 27.2 out of 100 in their study evaluating two interventions to improved shared decision-making.

The OPTION 5 tool has five individual items.

Item 1 focusses on the clinician, drawing attention to or confirming that alternate treatment or management options exist or that the need for a decision exists:

Item 1 (presenting options)	No effort (0)	48(17.7%)
	Minimal Effort (1)	213(68.2%)
	Moderate effort (2)	40(12.6%)
	Skilled Effort (3)	5(1.5%)
	Exemplary Effort (4)	0.0
Total		306 (100%)

Table 21a: Item 1 – efforts score in each observation

Item 2 measures how the clinician reaffirms or reassures the patient that the clinician will support the patient to become informed or deliberate about the options.

Table 21b: Item 2 – Effort scores in each observation

Item 2 (patient partnership)	No effort (0)	80(26.1%)
	Minimal Effort (1)	206(67.3%)
	Moderate effort (2)	20(6.5%)
	Skilled Effort (3)	0.0
	Exemplary Effort (4)	0.0
Total		306 (100%)

Item 3 measures how the clinician gives information or checks to understand the options presented

Table 21c: Item 3 – Effort scores in each observation

Item 3 (describing pros/cons)	No effort (0)	162(52.9%)
	Minimal Effort (1)	136(44.4%)
	Moderate effort (2)	8(2.6%)
	Skilled Effort (3)	0.0
	Exemplary Effort (4)	0.0
Total		306 (100%)

Item 4 measures the effort to elicit the patient's preferences to the options that have been

Table 21d: Item 4 – Effort scores in each observation

Item 4 (eliciting patient preferences)	No effort (0)	202(66.0%)
	Minimal Effort (1)	95(31.0%)
	Moderate effort (2)	7(2.3%)
	Skilled Effort (3)	1(0.3%)
	Exemplary Effort (4)	1(0.3%)
Total		306 (100%)

Item 5 measures the effort to integrate the patient's elicited preferences as a decision is made

Table 21e: Item 5 – Effort scores in each observation

Item 5 (integrating patient preferences)	No effort (0)	220(71.9%)
	Minimal Effort (1)	82(27.8%)
	Moderate effort (2)	3(0.9%)
	Skilled Effort (3)	1(0.3%)
	Exemplary Effort (4)	0.0
Total		306 (100%)

In Items 1 and 2 (exploring options and forming a partnership), minimal effort was seen on the part of the health care provider in most instances. While there was between no effort and minimal effort in discussing the pros and cons of each of the options in item 3, clearly no effort was seen in most instances when it came to eliciting and integrating patient preferences in items 4 and 5.

The item-wise means further substantiate the generally very low overall mean and are explained further below:

Table 22: Means of individual items in OPTION 5

Item	Mean out of 20 (Standard deviation)
Item 1 (presenting options)	5.03 (2.38)
Item 2 (patient partnership)	4.02 (2.15)
Item 3 (describing pros/cons)	2.48 (2.20)
Item 4 (eliciting patient preferences)	1.90 (2.34)
Item 5 (integrating patient preferences)	1.49 (2.0)

Since the observation data includes both C-section and normal deliveries, it is possible that there was no contact between the pregnant women and the physician in the context of some normal deliveries. Further analysis was done to see if there was any statistically significant difference in the patterns of shared decision-making in C-sections where final decisions were made exclusively by physicians and in normal deliveries where both nurses and physicians were involved in decision-making.

Table 23: OPTION 5 overall scores and the mode of delivery

Overall score	C/S n (%)	NVD n (%)	P value
0	24(12.0)	13(12.3)	0.815
0-25	162(81.0)	84(79.2)	
30-50	13(6.5)	9(8.5)	
55-60	1(0.5)	0.0	

There was no statistically significant difference between the two groups. However, when the means of the overall scores of the two groups were compared (2.70 and 3.13 for the normal deliveries and C-sections), there was a weak statistically significant difference (p-value 0.04). Given that it has been established that both physicians and nurses may be involved in

the decision-making for normal vaginal deliveries and the relative contribution of each of them is not known, this weak significant difference does not provide much meaningful information.

Having now outlined the quantitative part of the results demonstrating the degree of compliance with standard operating procedures, the level of shared decision-making in labour situations and establishing some of the statistically significant association with select variables, the next section focusses on the qualitative aspects of the study.

Qualitative phase

The methodology for the qualitative phase is discussed on pages 55-61 under the methods sections. In-depth interviews were conducted with 16 physicians, 16 women who had recently delivered through emergency primary C-section and 16 women who had recently delivered through elective primary C-section. This sub-section discusses the findings from the three sets of in-depth interviews with a focus on communication patterns in the case of physicians and women who underwent emergency and elective C-sections.

It should be said that the line between emergency and elective C-sections was not clear cut, as there was a tendency to attribute emergency causes even to elective C-sections. This was confirmed by the researchers in the field when they elicited the indication for C-section in the respective case records. The researchers used a simple definition of those who were in labour when the decision for C-section was made as those who had undergone an emergency C-section and all the others as elective.

Physician interviews

Sixteen physicians were interviewed all together; 100% of the physicians approached agreed to participate in the interview. All the participants were female physicians who performed C-sections, who had different levels of training in obstetrics, varying levels of experience working and differing own obstetric history.

The mean age of physicians interviewed was 39 years with an age range of 30-47 years. They had a mean of 11 years of experience with a range of 4-28 years. Six of them had one child; ten of them had two children. Fourteen out of sixteen physicians interviewed had all their children by C-section; 100% of them had a degree or a diploma in obstetrics. Their designations were as follows:

Table 24: Designation of physicians interviewed:

Assistant register	4
Consultant	7
Indoor medical officer	1
Medical officer	2
Residential surgeon	2
Total	**16**

The narratives that were collected from the physicians were coded to categories. These categories were then translated into final themes that encompass the range of codes they represented. The final themes were then linked to the physicians and are listed in the table below:

Table 25: Physician interview codes and themes

Codes	**Category**	**Final theme**	**Context**
Workload; Night hours; Private practice; Wide job description; Role as a mother; Normal delivery takes time; Personal security and lack of transport; Role as information provider on complications; Morning only surgeries	Personal and professional workload balance	Work-life balance	From within
Type of delivery is a feeling; Normal can be risky to the baby; I will decide; Save mother's lives; Personal experience; Normal delivery is best; Not a topic of personal choice; Limited trainings; Uncertainty on indications for C-section; Europe model not possible Rates unaware; Couldn't follow protocol; Patients rely on us and agree with my decision	Physician experience and perceptions	Personal preferences	
Middlemen influence the decision; Role of nurses and other co-workers; media; Politicians; Risk of harassment; Community acceptance of C-Section as	External influence	External influence	From without

new normal; Midwives help; Trial at home – TBAs (indiscriminate use of oxytocin); Grandmothers and mothers pressure; Privacy; People losing tolerance power; Referral needs money Too many attendants			
Risk aversion linked to country culture; Outside countries – can do trial; Uterine rupture as a serious risk; Self-referral to other facilities; Patients worry when physicians not around	Fear and Risk Aversion	Risk Aversion	System and skills
Communication –very sensitive situation; Difficult to motivate; Consent needed to prevent accusation later; Nothing without consent; Mother emotional in emergencies; She has the right to know the reason; Telling; counselling and convincing; Illiteracy	Communication as a way of sharing information	Communication skills	
Staff shortage; Human resources lack; oxytocin at home; No ICU; No specialists; Tools for decision-making; Anesthetists; Autoclaves; No instruments for assisted delivery; No epidural; Electricity/Generator; Everything is linked; Blood; No continuous monitoring	Human resource challenges	Health system	

Grouping of the physician codes yielded their contexts in which their communication with pregnant women and their relatives happen. These contexts include six final themes. The codes and categories are discussed under the grouping of final themes and contexts.

The physicians' communication with the pregnant women and their relatives were influenced by the contexts from within, from without and based on skills and systems in which they were operating in. The 'from within' context helped to differentiate the factors that are intrinsic to the physician and those 'from without' which are extrinsic. While skills can be

argued to be within and systems without, skills are acquired from without and integrated within. Systems on the other hand are intricately connected to skills and can be a facilitator and a detractor for effective communication. Hence the decision to combine and skills and systems as a separate context.

From "within" context:

Two themes consistently arose across the participants: their work-life balance and personal preferences "from within" context.

Work-life balance:

The physicians in general felt-overworked and did not have adequate time to spend with their families. The physicians had to balance their multiple roles and were struggling to manage time. All of them had a private practice to manage and had a wide job description in their public sector roles. Their available time prevented them from indulging in systematic communication with pregnant women and their relatives. Physicians had the below to say:

> Physician 7: *The procedure is to provide counselling to every patient but because of excessive workload, we can't provide counselling to all the patients. We only provide counselling to them who needs the most, like patients with complications. I have to see sixty patients daily. If I have to counsel attendants of every one of them, then I won't have time for doing operations.*
>
> Physician 1: *I do not have any weekends or holidays.*

One physician said that her time for her child was more precious, but she had the feeling that she was not doing justice, as her quote below says:

> Physician 5:
> *My child is very young, so I can't afford much time.*
>
> *I sit here usually from five to half-past seven (private chamber), not beyond that. I have to*

manage household chores. That is why it (attend to emergencies) is not possible.

Another physician had concerns about the lack of adequate manpower when compared to their places of training.

> Physician 10: *When I was posted in Medical College, Mitford Hospital, I always used to work with normal deliveries and manpower was huge there. But here in this centre we don't have the sufficient number of manpower. Here I have to perform C-sections, ward rounds, and even some office work as well. It is not possible for one person to do everything, so we have to make a balance. Because of the shortage of manpower, a physician cannot attend everywhere.*

One physician vented her feelings on how her communication worsens as the day progresses as below:

> Physician 6: *People usually say that the behaviour of gynaecologists becomes worse within a short time. Internationally, we are referred to do our duty only for 3 days after getting 40 years old. But we have to work this much. We are already overloaded and so it is difficult to behave normally to everyone. Due to our workload, we cannot manage our temper and behaviour properly. I will be able to behave nicely just after waking up from the bed but it is not possible after providing service to 40-42 patients.*

Working during night hours seems a major concern for the interviewed physicians, partly because of security reasons. One physician interviewed had to say this:

> Physician 1:
>
> *The security system of the hospital is that I myself feel unsafe to come to the the ward, but if it is after 10 o'clock at night, I do not go to cabins. That place is a bit risky. I do not go up there.*
>
> *The ambulance is out of order. I have to come by rickshaw. I bring my husband with me.*

Personal preferences:

The physician's role in decision-making in C-section also seems to be guided by their personal preferences and perceptions. All physicians seem to share the same view that normal deliveries are preferable, and the mode of delivery should not be one of personal choice but a vast majority of them (14/16) had their babies delivered by C-section. All of them were insistent that they had C-sections for valid medical indications and preference played no part. They seem to pay limited respect to guidelines as they feel such guidelines are developed for European contexts only as the below quote from a physician implies

> Physician 6: *If we had the monitoring facility, we would have done the same as the European countries do. There are a physician and a nurse for a patient. Don't they have a system like this? But what is in here, how many people? How many physicians or how many other nurses we have? For 52 patients in 52 beds, we have only two sisters.*

The physicians seem to be guided by their own personal experiences and preferences and assume that women will comply with their recommendations as it is in their best interest:

> Physician 4: *We can't say anything to the patient which is harmful to her. The patient will be informed everything but not these things which disturb her emotionally. At that moment, patients mentally become weak. So it is our duty to give her mental support. Sometimes we couldn't follow the protocol exactly. We do it from our experience.*

Given the limited respect for guidelines and protocols, physicians seem to go their way in relative indications as one physician noted in the case of a nulliparous woman with a breech presentation

> Physician 7: *We have instructions to perform termination caesarean section when we see the breech presentation or primi-breech. We don't perform normal delivery for primi-breech, but we do it when we see multi-gravida.*

The same physician surprisingly had this to say bringing in a greater degree of subjectivity in C-section decision-making.

> Physician 7: *There is no absolute indication for that (caesarean section) except transverse lie. It's also called transverse lie at labour according to our books.*

Their own obstetric experience was reflective of their tendency to hold certain biases on the mode of delivery as the below extracts from two physicians signifies:

> Physician 4: *It was my fault. I was a high-risk mother. I had a bad obstetric history. I had two abortion experiences. So, we didn't want to take any risk. Though the next issue came within 13 months after the first delivery, I have to go for C-section.*

> Physician 1: *As my height is four feet and eleven inches, I knew, the occurrence of* CPD (Cephalo-pelvic disproportion) *was very natural for this height. As my blood pressure rose very high and my baby was at stake, that's why I had to have a caesarean section.*

Physicians were largely unaware of their own C-section rates or for that matter their institutional C-section rates. Physicians looked at nurses to help them with the data and were not closely monitoring their work and performance as one of the physicians responded when asked 'what was the proportion of C-section and normal deliveries that we conducted in the facility in the last month?'

> Physician 4: *I can tell you after seeing the register. Because sisters maintain these.*

From without:

External influence

There appears to be the influence of many external factors in the physician-patient communication happens in the context of C-section decision-making. Many actors are involved, and they influence the decision-making in C-sections. The physicians in general believe that the first influence comes from the attendants of the pregnant women. One physician had to say this:

> Physician 4: *You know that we face various problems if we want to do hospital-based practice. Such as, some days ago, we wanted to do a normal delivery of a patient who had a previous caesarean delivery. But the guardians of the patient told us that if we do not do abdominal delivery and for that if baby gets any problem then we have to pay for this. It will be very difficult for us. It is not like inexpensive things such as fruits or other simple things to reimburse. For this reason, we couldn't take any risk of it.*

Another physician remarked on the role of mothers and grandmothers as below:

> Physician 1: *Mothers and grandmothers are saying that the patient cannot bear this pain. They suggest for caesarean section. In counter, we say how their babies were born - we remind them that their babies were born in normal delivery. They listen and just laugh but do not say anything. They gave birth normally, but they do not encourage their next generation for normal delivery. Actually, they do not know the advantage of normal delivery; they are scared of it.*

Physicians identified multiple other sources from which they faced pressure from. Politicians were singled out as those exerting pressure on them:

> Physician 7: *There are political issues also. We (physicians) will not try hard for vaginal delivery on patients who are relatives of high ranked government officials because if something goes wrong then I (physician) have to face serious consequences. I am saying that from my experience. I will get the blame for that. If we (physicians) had more freedom, then the the rate of Caesarean section would decrease more.*

> Physician 4: *Some patients can't tolerate labour pain. In that case, a various phone call comes to us to do a caesarean. A phone call is an annoying matter for us. We have to attend the phone call. It*

was seen that a politically powerful person tells me that this is my people, do caesarean to her. While we make fun within us then we named it an absolute indication of caesarean. This is the one and only irritating indication. For this indication I couldn't protest, if I do, it will be problematic because politically empowered persons are here. This issue is irritating to all of us. This also happens that at 11 p.m. a phone call comes for requesting caesarean section.

Physicians also felt that pressures came from nurses and other staff who work in their facility and try to influence the decision-making in favour of C-sections. The below extract from a physician explains this:

Physician 4:
Another thing is hospital staff, they also create so many problems. They convince the patient in such a way, I don't know who exactly does this, but the patient is motivated in such a way that she thinks, if a caesarean happens, she will get well.

After getting admission to the hospital, people search for known persons. Because everybody knows that if there is a known person in a government hospital, you can do whatever you want. So they find out sister and continuously disturb nurses to manage caesarean to their daughter

While some physicians talked about the role the nurses can play in influencing C-section decisions, some others expressed the positive roles they play. One physician had the below to say, and in the process, acknowledged the role of the new cadre of midwives too.

Physician 5: *Actually, it is true that they (nurses) are experts and experienced working for a long period, and thus sometimes they let us know whether my decision is right or not. And with my medical perspective, I try to understand whatever they are implying, is it right or wrong. They are saying according to their experience, but I am thinking*

about books, sometimes their opinions are also realistic. Our midwives can also conduct a vaginal birth after caesarean (VBAC) smoothly in appropriate cases.

Most physicians felt that the role of traditional birth attendants outside the hospital was quite significant. Indiscriminate use of oxytocin is seen as one of the reasons behind them receiving complicated cases in their facilities, hence needing C-sections. Two physicians had this to say:

Physician 4: *Usually the TBA (traditional birth attendant) push this oxytocin drip injection at home. They push oxytocin for normal delivery to happen early. This can lead to foetal distress and becomes an indication for C-section.*

Physician 7: *One of the reasons is that critical patients come to us. Most of them complete their trial at home and then the family brings the patient to us. And the baby has died in the womb and this type of patients also comes to us.*

The physicians in general felt that the C-sections had become the new normal in Bangladesh and the tolerance to pain has diminished. Some women also ask for C-section to combine with tubal ligation. A few quotes from different physicians on this are below:

Physician 14: *People are now impatient, a mother forced us to do C-section for her daughter in order to give her relief from her pain*

Physician 10: *This kind of thing happens with the patients who electively go for C-section. When we tell them that everything is all right and they should try for normal delivery, they deny us the reason of just pain. They sometimes even tell us that if we do not perform C-section, they will take the patient somewhere else.*

Physician 1: *Another matter is that multi-patients, who have 3-4 children, are mentally prepared to come and take admission in the hospital. They*

believe that during caesarean section, they will also have ligation, two-in-one. They think that ligation is possible only during caesarean section.

Though the physicians referred to the external factors, they did not feel that these were the major reasons for the increasing C-sections. One physician said:

Physician 4: *Which I told you, all are emergency. Elective things are 5% only.*

System and skills:

In the context of systems and skills, three major themes emerged: risk aversion, communication skills and health system factors. Risk aversion is referred to here as defensive obstetrics, specifically thinking of the worst possible outcome in each instance and protecting one's self from blame and repercussions. This is seen as a critical factor behind the C-section decision-making process. The risk and fear come less from litigation as it does in the western world and more from physical threats and professional disrepute. Use of terminologies such as "precious baby" and "valuable pregnancy" were common and was adding to the pressure of intervening with the intention to derive a positive outcome. The following quotes from different physicians are a testimony to this.

Physician 4:
If the first delivery was done by C-section, then for the next deliveries, we don't want to take any risk in our country. In outside countries, they keep in the trial to do normal delivery. But we admitted the patient for C-section as soon as possible. Normally, we can't do it in our country.

Usually, when we decided to do a trial, mothers' condition becomes bad, may rupture the uterus, then the foetus will die, the mother will also die, and her uterus will be in trouble. So we don't want to take the risk.

Physician 5: *If the baby stuck the first time, it would be held there again as there is a problem in her birth passage. So, the next delivery will not be normal. But she doesn't know that in next pregnancy she*

should come to hospital before the labour pain starts. She lacks this information; sometimes we may miss informing this. I think the C-section patient should be told to do her next delivery in the hospital. We try to do C- section at least a week before the expected date before the labour pain starts. If not, she may face many problems such as a tear of the uterus, and such information should be provided to everyone

Physician 7: *Maybe the patient conceived the baby after 10 years of marriage and it is a valuable pregnancy. Most of the time we see complications when they (patient) go into labour in those cases. There could be reasons for why she could not conceive earlier. She could have hormonal problems, which can be related to her elderly primigravida situation. Patient being elderly primigravida is not the actual reason for us to choose C-section, it's the associated risks that force us to consider for surgery.*

Physicians were worried about the professional disrepute that journalists could bring upon them if they did not yield to pressure exerted by them for C-sections in people known to them but also for any negative publicity that any adverse outcome might bring to them.

Physician 4: *You know that today, many writings come in newspapers against the physicians.*

Physician 11: *Of course, the patient of a journalist is like the political person. They force me to do caesarean at 3 a.m. They are very dangerous. Nowadays, there are so many journalists. Easily they become a journalist. It's become a phobia to us.*

Threats of vengeful action were also leveled against physicians. One physician expressed her challenge as follows:

Physician 6: *Patients mainly want to have C-section because of pain, and they don't want to tolerate the*

> *pain, and so along with the patient, guardians also become unstable. They threaten us that they will take revenge if the baby or mother gets into a bad condition. So most of the time we are bound to do according to their words for all these threats.*

Communication skills:

The physicians were aware of the sensitivities in the decision-making process. They described doing their best to communicate with pregnant women and their families. However, this communication was often restricted to information provision, convincing them to agree to their decisions and protecting them from future reprisals. Different terms such as "counselling" were used to denote "convincing."

> Physician 12: *At that time (foetal distress), we tell them that the baby is in bad condition and if we do normal delivery, the baby can die, so you will have to do this. We counsel like this.*

Information exchange, soliciting the views of the women on the preferred mode of delivery and arriving at a shared decision was not obvious from the physician interviews. One physician expressed this in her own terms as below:

> Physician 4: *When they do not agree after making them understand that the baby will not come out normally and she does not understand, we keep documents that they knew the condition of the baby and mother and still chose the normal delivery. We write this situation in Bangla, explain them orally and get a sign. We keep the document so that they can't blame us later for the undesired consequences.*

One physician had all the knowledge in shared decision-making, but it was interesting that her intention of involving the patient in the decision making was not to empower her and improve outcomes but to avoid any possible blame for herself in the future.

> Physician 5: *We need to brief him/her about the problems, to which extent I can help and if I can't treat him/her it should be expressed explicitly. I should also guide him/her about where next s/he should go for better treatment. Means, if I explain everything, he/she can't blame me for the unintended consequences.*

The physicians singled out their difficulty in communicating with husbands on the mode of delivery and are sometimes related to the practice of episiotomy. Some of them were aggressive in their demands as one physician quoted:

> Physician 1: *In my case, the husband warns that no surgical incision in the vagina i.e. episiotomy is not allowed. That's why patients do not prefer normal delivery.*

Another physician had the below to say:

> Physician 4: *We have to take consent from the whole family means we have informed all family members of the patient. We must have to inform patients' husband, also have to inform other relatives. Then many scenarios we can see. Sometimes group wise people come to us. Sometime maternal uncle, paternal uncle, come to us. We met all of them and tried to make them understand with a cool head. At OT all of us face problem from husbands' availability. If the husband was not present, then we search for other guardians. If there was any emergency, we take consent from them. If we prepared for taking consent before, then we need husbands' presence. With him, we take two or three guardians' signatures. Because in future, they couldn't accuse us of this.*

The physicians acknowledged their limitations in communication skills and referred to some training during their medical education and learning from teachers during ward rounds. They were in want of more formal communication training.

> Physician 7: *Counselling is a part of our academic study. That's what we call communication part.*

> Physician 1:
> *There was no training, but when we were in charge of the ward, our teachers taught us how to approach different types of patients, how to approach the attendants of the patients. We were taught by our teachers but there was no specific training on it.*
>
> *Communication with patients is very important and if there is any training in this regard, then it is easy to handle the patients.*

One physician had a different idea and called for a separate counselling section to deal with communications with the woman and her family.

> Physician 5: *For example, if we look into a foreign country, we can see that they have a separate counselling section. There are assigned persons for counselling. A patient can communicate on every aspect, there are separate receptionists, and independent counselling section so there is no need to communicate with Physician.*

Health system factors:

The physicians cited many challenges in the physical infrastructure, manpower, availability of supplies and support personnel. These constraints had a bearing on their C-section decision-making. Some of the constraints are articulated in their statements below:

> Physician 7: *We do not have proper monitoring facilities or logistic supply to monitor the baby's condition (in the mother's womb). We do not have a medical officer who can constantly monitor the mother or her baby (in the mother's womb). Suppose we gave a trial for normal (vaginal) delivery of a patient, but it seems that it will take another 4 to 5 hours to perform a normal (vaginal) delivery. As we lack continuous monitoring facility,*

most of the time we terminate the chance of normal vaginal delivery.

Physician 1: *But now, we do not have enough anaesthetists. So, it has become a kind of official order that sirs (anaesthetists) are to inject anaesthesia only in the morning, not in the evening or at night. So, we do not have an operation theatre in the evening or at night.*

Physician 5: *In high resources countries, they have midwives, nurses who can monitor an NVD case continuously, the counselling services are excellent, and the patients are also cooperative so they could trial for an NVD. In our country, social pressure is immense.*

The physicians are under pressure from within, without and the systems they operate in and this has an impact on their communication with women and their families and involving them in shared decision-making. The subsequent section deals with the findings from the interviews with women who underwent elective and emergency C-sections.

Interviews with women who underwent Emergency C-section

Interviews were held with 16 women who had undergone emergency C-section in the study facilities. The interviews with the women who underwent emergency C-section was more on the communication aspects of decision-making and the below table outlines the codes, categories, final themes and context. In some instances, the interviews were complemented by family members who were with the mother at the time of labour and eventual C-section. 4 of the 16 women who were initially selected for the interview declined and they were substituted by 4 other consenting women. A brief profile of the participants below:

Table 26a: Age group of participants

Age group	Number
18	4
19-24	7
25-30	4
30+	1
Total	**16**

Table 26b: Educational status

Education level	Number
No education	2
Grades 1-6	7
Grades 7-12	4
College	3
Total	**16**

The majority of women interviewed were in the age group of 19-24. In terms of educational status, the majority of women had 1-6 years of schooling only.

Table 27: Women – Emergency C-section interview codes and themes.

Codes	Category	Final theme	Context
Attempts at home; Traditional birth attendants; past negative experience	Local pressure	Yielding to local pressure	Guilt
The behaviour of health care providers, rudeness, aggression, yelling, not listening, had to obey	Health workers attitude	Lack of respect	Powerlessn ess
Myths and misconceptions – videos, big baby, high BP, water break, assumptions on physician availability, multiple service provider contact physicians taking religious angle; more effort on dissuading preferred mode of delivery.	Confidence in indications	Speaking the same language on indications	Knowledge
Fear and fright, mother's death, baby's death	Negative information exchange	Negative language	Language
Overhearing; no care talk but direct cure talk;	Interpretation skills of the woman	Technical language	
Cost driving request; have spent a lot and nothing more left; home too to come back; no option	Do what you can	Prayers take over	Fatalism
Too much uncertainty and cannot handle the pressure	Emotional drain	Decision under pressure/ Quick end	

There were five contexts and seven themes identified based on the analysis of the interviews. Each of the final themes is discussed under respective contexts.

Guilt

Yielding to local pressure:

It was evident from the interviews that pregnant women were under various forms of pressure when there was a need for decision-making in C-sections. The context of the pressure was guilt that they had attempted delivery at home with a traditional birth attendant and had landed up with complication or a sense of future guilt that if they do not take a risk to save their baby, this will remain with them forever if the baby was not to survive.

> EmCS patient 15: *We were bound to take the decision to have a C-section. We wanted to have a normal delivery at home. We tried by the traditional birth attendant at home and it failed.*
>
> EmCS patient 13*: Then what to do? I told directly, even I suffer grievously, I would take a thousand pain for my baby. Even I was sick, still I asked physician madam- "as you suggested for C-section, will my baby survive after this operation?" She said, "Oh my God! You are not even thinking about yourself; you are thinking about your baby! If a tree is saved, fruits will be available in the future."*

Powerlessness

Lack of respect (loss of a trust building opportunity)

Pregnant women and their families had no opportunity to develop any form of trust with the health facility or the health providers in it. In most instances, the women had visited multiple health facilities and had seen many health care providers before they arrived in the health facility where the C-section happened. A sense of mistrust was perpetuated by a lack of respect, empathy and care from the staff in the short time they were there. The women either were in fear to speak up and/or were preconceived that there was no use communicating their wishes to the government staff. The below extracts from the women and their families are a testimony to this:

> EmCS patient 10: *How could we (discuss our preferred mode of delivery)? Is it possible to tell physician everything? Why didn't we tell? We were*

afraid; it's not possible to say so many things ….they asked about the report (ultra-sonogram) - we showed…. They asked to admit my daughter… my son and daughter-in-law brought my daughter here… they signed….

EmCS patient 15: *They did not tell us any reason. I think government hospital physicians do not explain the reason.*

EmCS patient 13: *Could I tell? Where could I tell? They didn't even ask me; they even didn't feel to know what I wanted! They just (did it); if they gave the medicine to reduce the swelling, nothing would be required. They didn't give me anything for that. They directly approached for C-section.*

EmCS patient 5: *From our side, who will make the decision? The physician told us that the normal delivery would not be possible. For this reason, we had no other option other than to accept the physician's decision.*

One mother was very upset with the physician for not empathizing with her on her premature baby but asking to thank God for saving her life.

EmCS patient 13: *What I feel about the C-section is, if they had given me proper medication to cure my (vulval) swelling, the C-section wouldn't have been required. We could have tried a home delivery instead. And if the C-section would not have happened, my baby would be bigger in size by this time. It would console me. Now, if you have to do C-section and baby's size is so small… can it console you? Isn't it painful to accept? The physician though said, "You have a long life. You are alive still now." I was angry but what can I do?*

Knowledge

Speaking the same language on indications:

Women and their families seem pre-sensitized about some common indications in C-section and seem agreeable to C-section when they hear the same indications from the health care providers. Variations in blood pressure, not even fluids in the baby sac (rupture of membranes), big baby, baby in the reverse (breech) and short stature of mother are some of the indications that appear frequently. Women obtain this information from before their deliveries from various sources including the internet, those who had a past C-section, from their radiologists who do ultra-sonograms at various stages of their pregnancy, traditional healers and even others in the community. While it is a well- established fact that breech presentation is common in the early stage of pregnancy and the baby's position can change later, in the mind of the mother, this remains deep-rooted. This is what one woman had to say:

> EmCS patient 6: *Then I did ultra-sonogram on 7th month to know baby's condition. After going there, they reported baby's position was breech then. So they advised me to take medicine to make baby's position normal. That's why they asked me to visit "boro daktar" (specialist). Yes opposite. I cried as I got worried*

Over-anxiety of families led them to various places and to seek varying information and to perform unnecessary tests, further perpetuating their anxiety. One mother had the experience of going to see many health care providers before landing up in this particular hospital.

> EmCS patient 4: *My mother took me to all these places. As I was sick, she brought me to this Sadar hospital. If anybody suggested my mother to do my ultra-sonogram test, she did. She did everything people suggested in my different health conditions.*

Language

Negative and technical language:

The language used by health care providers in the health facility were either too scary or too technical to the women, who often came from poor and low-literacy backgrounds. An agreement to the C-section procedure seems to happen in the sense of fright or technical intimidation. In some instances, these messages are not given directly to the woman in labour but rather to their relatives or in discussion among themselves, which the woman overhears and gets anxious about. One woman shared her anxiety and emotions in the following way:

> EmCS patient 13: *She told my sister, asking me to go out of the room, that it would be difficult to save my baby and me. She frightened my sister by saying this. She came out of the room crying, and my sister-in-law was also crying. I also started crying seeing them crying; they didn't share with me all that the physician said to them.*

One woman who overheard the health care providers talk, said:

> EmCS patient 2: *They were saying, they would have to do C-section, otherwise it would not be possible to save my baby. My delivery date was over…. Observing the ultrasonogram report, they were discussing my situation.*

Fatalism

Decision under pressure:

The pressure of the situation often affected women and the families, and in most instances, they left it to fate at the crucial time of decision-making. This sense of fatalism appears to come either from lack of financial resources to explore alternates or to get relief from the immense pressure built around the situation.

One parent of a woman who had just delivered had to say this:

> EmCS patient 10: *That physician suggested to do C-section and told us to let them know our decision within 5 minutes. I prayed to the Almighty for whatever was better to happen. If C-section is*

required, why delay? We proceeded. The baby was in danger since the amniotic fluid was dried; it would be difficult to save. So they asked them (son and daughter in law) to sign.

Another parent had to say the below on wanting peace.

EmCS patient 11: *I requested a physician to solve my daughter's problem peacefully; I want peace. The physician said, "I have no ability to give you peace; just have faith in God. God will give you all the peace, so don't worry." I asked, is the baby is dead? She answered me, "No, don't be upset. We will try to our best. Just sit down and keep the passion."*

A woman who delivered recently was able to derive spiritual solace for the C-section decision:

EmCS patient 3: *I was afraid of it. I always prayed to Almighty to have a normal delivery at home instead of having a hospital delivery. But Allah has brought me here to have this baby.*

Interviews with women who underwent elective C-section:

Interviews were held with women who underwent elective C-section to understand the circumstances behind their C-section decision-making with a broader focus on the social contexts in which they are made. Sixteen women were interviewed. Below is the profile of the participants in the study

Table 28a: Age group of participants

Age group	Number
18	1
19-24	8
25-30	5
30+	2
Total	**16**

Table 28b: Education level of participants

Education level	Number
No education	0
Grades 1-6	4
Grades 7-12	10
College	2
Total	**16**

Half the women interviewed were in the age group of 19-24 and had completed their primary education; 2 out of the initial 16 women requested to participate in the interview declined and were replaced with 2 other women who consented. As mentioned earlier, the lines between emergency and elective C-section were blurry and women interviewed were not able to categorize themselves easily. Hence, the same definition of elective C-section as those who were not in labour when the C-section occurred was used to categorize those interviewed in this group. Contexts, codes and themes generated from the interviews are described in table 29. There were 5 contexts and 8 themes in total and the analysis is presented subsequently grouped under contexts and themes.

Table 29: Women – Elective C-section interview codes and themes.

Codes	**Category**	**Final theme**	**Context**
Allah knows better; Traditional healer (Kabiraz); Alga Talga (Devil air); Blessing from elderly people; Faith on almighty; Myths of evil spirits	Faith and resigned to a destiny	Faith	Safety of C-sections
Ultrasonogram (USG) at Private clinic and its centrality in fixing indications: Baby's position wasn't good; Baby was weak; Baby movement was less; Rupture of membranes; Post-date	USG and its universality for determining indications	USG and its universality	
Learnt from other people; Younger sister; aunty on safety; Only heavy work after C-section not possible	Sources of information	Confidence in safety	
Whatever they suggest; We have nothing to say except arranging blood – clue for C-section; Consent to protect themselves from a claim for death; No more information	One-way (limited) communication	Physicians know best	Physicians in control
Illiteracy; Poverty; Don't know about consent; Don't care; Don't know why we signed	Consenting without understanding	Consent, a formality	

Sterilization; Man is working; Distance – no point returning	An added benefit of combining sterilization	Collateral benefits	Value for money
Anything for my baby; God's gift; Don't want to take the risk; Previous negative experience	Complications don't matter	Baby is the future	Sacrificial attitude
Hospital environment; fear of pain; seeing others cry	Lack of privacy fueling fear	Privacy over pain	Fear of pain – not a major concern

Safety of C-sections

Faith

It was evident from many of the interviews conducted that women had subscribed to various forms of faith, mostly religious but also some traditional beliefs, making it a recurrent theme. This gave them confidence in the C-section decision as they had resigned to the fact that what was happening was due to the divine will in most instances and a counter to evil forces as indicated by some traditional healers.

One woman had to say this on the divine will and the blessings behind her decision:

> ElecCS patient 6: *I don't know anything; Almighty knows everything that would save (my) baby; He has given; I took blessing from my elderly people.*

Two women narrated their experiences with traditional healers and traditional birth attendants and how this thought was always in their mind in their pregnancy progress. These women indicated this thought was crucial in their decision to agree for a C-section.

> ElecCS patient 3: *When I was pregnant, then the Kobiraj (traditional healer) warned me that some evil spirit wanted to harm me any time in the dusk. He also told me that the evil spirit passed over the roof of my house. He also could foretell that once I had gone to my relative's house and during my pee, I did not cover my head. And since then, that the evil spirit had been after me to harm my body.*

> ElecCS patient 9: *Baby goes down in belly. That time, Dai (TBA-traditional birth attendant) was present in our area who basically used to deal with normal delivery at home. My mother-in-law called Dai, and she made the baby's position normal through oil massage.*

USG and its universality

As in the case of emergency C-section, there was a heavy reliance on ultrasonogram (USG) to detect complications, using that as the basis for C-section decision-making. Almost all women interviewed had at least one USG during the course of their pregnancy. Some women had up to four USGs during the course of their pregnancy. Breech presentation during the early stages of pregnancy, low amniotic fluid index, big baby and other non-evidence-based indications seem to be planted in the minds of the women as they approach term pregnancy. One woman discussed with the physicians but had to give in, as their decision was based on the USG report.

> ElecCS patient 3: *I asked them if normal delivery was possible, as I was physically fit from all sides. They got annoyed and said that we people did not try to understand the situation that my water level was supposed to be 12 points, but I had only 7 points of water and my baby was very nervous. I could understand the situation that the movement of my baby was not satisfactory. Then I was not a bit nervous about the caesarean section. I just wanted a healthy baby. I would be happy with anything for a healthy baby.*

Confidence in safety

Some of the women interviewed had subscribed to C-section as a safe procedure as they had seen their friends and relatives have it and recover fully. Some women thought that the only risk with C-section was the challenges in doing daily chores for some time. One woman was influenced by her friends and said:

> ElecCS patient 5: *Yes. I also had the desire of doing a Caesar operation. My friends also had a C-section*

operation and for this reason, I had the desire of doing mine.

She was not aware of any other risks and added this further:

ElecCS patient 5: *The problems that one has to face for doing a C-section is that they cannot do heavy work. I don't have any kind of heavy work in my family.*

Some women had their friends and family working in the health facility, who provided the confidence in the safety of the procedure in that facility. One of the relatives of the mother had to say this:

ElecCS patient 3: *One of her paternal mothers-in-law is working at this hospital in the gynaecological ward; she helped her in many ways for getting better service from this hospital. She talks to me very cordially.*

Physicians in control

Physicians know best

Several women in the interviews handed over control to the physicians in the final decision-making. These were based on past negative experiences, as one woman had experienced as below:

ElecCS patient 6: *As none of her babies is alive, we had to agree with whatever the physician advised.*

Another woman had very little time and had to be in a hurry since she had to be taken to the operation theatre for the C-section.

ElecCS patient 1: *Doing PV, they saw that the baby's movement was little and from night, the baby was not moving, so they did PV and saw that baby's head was on the upper side of my abdomen and my cervix didn't open. For this reason, they decided on caesarean delivery. They didn't tell me anything like the baby might have been facing any problem. They said, "It should be quickly done by a caesarean*

operation because the delivery date is also over and her cervix is not opening." Afterwards, I was taken for a caesarean operation.

Consent, a formality

The act of giving consent was seen more as a formality by most women. Some of their below reactions are a testimony to their thinking on the issue:

ElecCS patient 6: *I don't know about it. I don't care about it.*

ElecCS patient 5: *At the time of providing the signature, I just gave the signature immediately after they told me.*

ElecCS patient 8:
If anything bad had happened to a patient, she would not blame. She would not be able to demand anything.

Apa, (Sister), I don't know for which reason they took the signature

Value for money

One out of the 16 women brought in the value for money concept in being able to combine C-section with tubal ligation, and this decision seemed to have been made early in their pregnancy as the woman remarked:

ElecCS patient 8: *People tell. Another person in our area did it (C-section and ligation). We didn't know about it. We didn't hear about it here. In our area, some people did it. I decided it in 5 months. We already have 4 children.*

Sacrificial attitude

Baby is the future

Some women had negative experiences in the past pregnancies and were therefore willing to take risks with a C-section. Two of the women had this to say:

> ElecCS patient 6: *One baby died even though it was a normal delivery. I wanted to have a C-section this time.*
>
> ElecCS patient 3: *As none of my babies were alive; I had a mind for going for C-section.*

Fear of pain – Not a major concern

Privacy over pain

Lack of adequate privacy in the health facilities seems to create fear and panic in some women, as the below situation illustrates:

> ElecCS patient 5: *My aunt came to see me there. Because at that time, a girl became very sick at the time of having a normal delivery. Everyone got afraid after seeing it. I will not be able to tolerate it. Then the physician examined me and was having an angry mood. She said, "We are trying to have a normal delivery. Humm, if you all have so much problem and want to have caesarean delivery, then we will do it if you can manage everything immediately."*

Two other women did not regret the decision, as they expressed below:

> ElecCS patient 10: *It was not a bad decision. The sufferings which I saw from the normal deliveries made me afraid. Nothing else. The way they were screaming and crying.*
>
> ElecCS patient 1: *I also did not want to take any risk because within two days, nothing happened. No, I mean I didn't want to take any risk.*

It was interesting to note that the majority of the women who underwent elective C-section were not concerned much about the pain due to normal deliveries. It was not the fear of pain that influenced their decision or C-section in most instances but the lack of privacy and what they saw of the others in the labour wards. Contrary to what other studies have shown in terms of women expressing fear of pain as a reason for their decision to agree to C-section,

this study actually found that more women had fear of pain due to C-section (Long et al., 2018). The following quote from a woman is illustrative of this:

> ElecCS patient 9:
> *There are many benefits for a normal delivery, and it is painful to have a C-section and have no sufferings in normal delivery like caesarean.*
>
> *My C-section operation was performed even before my labour pain started. I wanted my pain to get started. I wanted to see whether the baby would be born through normal delivery*

One woman regretted that she had to go through the pain of C-section and would have preferred the pain or normal delivery

> ElecCS patient 15: *I felt so bad that it was even better to die. They said there is no pain in C-section. "How painful is the C-section?" They said, "It is good to have a C-section." Only my body knows about the pain of C-section. If someone falls in the trap of C-section, you may even die. Normal delivery was painful too. However, the extent of pain was not as much as this one. After C-section, I can't stand, sit or eat. There is continuous pain in all of my body.*

This chapter presented the quantitative and qualitative results of the study. The quantitative section reveals a low level of adherence to standard operating procedures in labour situations and a very limited degree of shared decision-making in C-sections. The qualitative sections bring out the perspective of physicians and the women who have undergone C-section, ranging from risk aversion among the physicians to the myths and misconceptions that prevail among women and the community on C-sections. The next section will triangulate these findings and analyse them in light of the literature review and relevant theories.

Chapter Five – Discussion

The discussion chapter interprets and analyses the study findings in light of existing literature, and it attempts to explain new findings emerging from the study. The analysis utilises the convergent parallel design approach in the interpretation of the data by merging data from both the qualitative and quantitative components of the study to form a coherent account of the phenomena under discussion. After the analysis, the strengths and limitations of the study are discussed, and, finally, the chapter ends with a summary of the analysis.

Meaning of the consent form

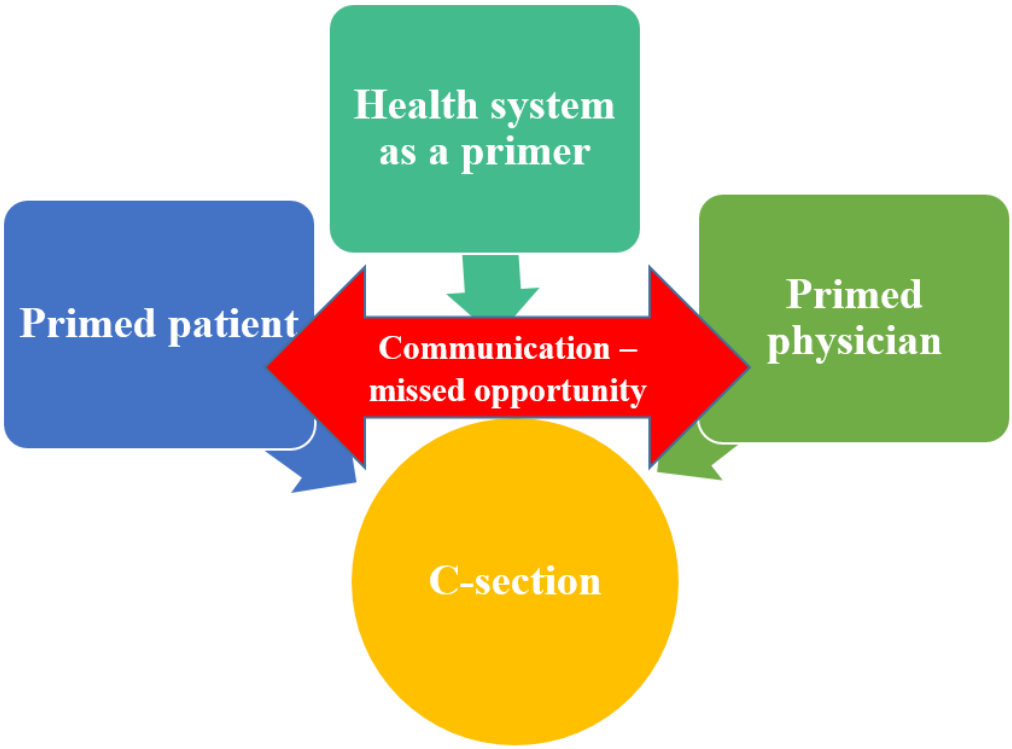
The results from the study validate the existing literature (Ha and Longnecker, 2010) on the complexity of communication between the physician and the patient (in most cases, the pregnant woman and her family) in the context of consent for C-section. The study establishes that there are numerous factors that influence this consenting process, some of which are backed by literature and theory and others that are new findings from the study.

The quantitative phase of the study firstly establishes the very high intra-institutional C-section rates in the public sector hospitals of Bangladesh. The study's finding of 65% intra-institutional C-section agrees with the findings on Bangladesh from the recent Lancet series on C-section (Boerma et al., 2018). Robson's classification further demonstrates that there is high utilization of C-sections, even for low-risk groups (Groups 1 and 2) when compared to standardized populations. The study finds that written consent was taken in 97% of instances (page 77).

The consent form is the key document around which the decision of informed consent by the patient after a discussion with a physician is supposed to pivot. The reality is that the decision is not made in this way. The consent form is an artefact of a process, and the data in this study demonstrates that the decision comes about through factors outside of the formal consent process. As discussed in the literature review, one of the best definitions of informed consent comes from The Royal College of Obstetricians and Gynaecologists (RCOG) who define consent as a "process during which the professional provides accurate information concerning a procedure to a patient that allows them to reach a considered action" (RCOG, 2015).The study finds, through the very low OPTION 5 scores in all domains (page 83-87),

that the consenting process neither involves provision of accurate information nor is there a considered decision taken on the part of the patient. In fact, there are many prior factors at play, which means that consent does not follow the process described . The study finds that there are factors that prime the patient and the physician in favour of C-section even before the clinical encounter and there is very little evidence of any remodelling of these primed decsions during the encounter to change course. In fact, the clinical encounter and the poor communication that was found to happpen during it, risks setting up a vicious cycle, exaggerating the priming into a dominant form of practice with the consequence of further increasing C-section rates in Bangladesh.

Figure 17: Priming in C-section decision making



Factors at play in the consenting process:

Figure17 above illustrates the coming together of a primed physician and a primed patient in the background of a compromised health system in C-section decision making. The physician-patient communication which could be an anchor to change course of the dominant C-section practice is a lost opportunity as the study reveals. This is discussed in detail below:

'The primed physician'

Risk perception

The factors identified in the study influencing the communication, or the lack of it and eventual decision-making, are similar to what Minkoff (2012) outlines in his paper on litigation and C-section rates. As discussed on page 27 of the literature review, Minkoff (2012) identifies four factors that the physicians have to consider while making decisions: 1) the likelihood of being sued; 2) the harm of a lawsuit; 3) the effectiveness of C-section in avoiding a suit; and 4) any potential harm from caesareans sections

In the context of physicians making decisions in public hospitals in Bangladesh, the evidence suggests that Minkoff's factors need some modification. It is not the fear of being sued that the physicians in Bangladesh seem to be operating from but a combination of physical (potential physical abuse conveyed through threats of revenge by patient's relatives), social (loss of reputation among fellow physicians) and professional (affecting future practice) harm. These factors are described in the results section under the theme of "external influence" in the context of "from without" on pages 93-97 of the results section. No separate law on medical negligence exists in Bangladesh except for scattered references in medical codes and ethics and criminal statutes. Medical negligence is covered under tort liability and is not entertained by courts or seriously pursued by lawyers (Karim, Goni and Murad, 2018) and hence the chances of legal action for medical negligence in Bangladesh remains low. However, physical violence against doctors in Bangladesh remains a threat (Rasul, 2012; Ahasan and Das, 2014).

The interview of 16 physicians recurrently brought out their perceptions of the following: 1) the likelihood of public harassment or harm; 2) the physical, mental and social consequences of such harm; 3) the effectiveness of C-section in avoiding such harm; and 4) and rarely any potential harm of C-sections for the women. The potential harm of C-section to patients (both mother and babies) rarely seems to cross the minds of physicians when compared to the harms they as physicians suffer when not providing it.

The study shares its findings with observations of Keren-Paz (2010) who indicates that injuries allegedly caused by physician errors can lead to the following: a) legal liability; b) loss of reputation independent of legal liability; and c) loss of reputation due to legal liability. Keren-Paz (2010), in his model, postulates that the loss of reputation can harm the physician in four ways: 1) loss of reputation with his/her peers (colleagues, employers and contractors); 2) loss of future patients and hence financial loss; 3) self-perceived reputation loss leading to

psychological issues, stress and indirect financial losses; and 4) liability might increase liability insurance premiums.

Zhu, Li and Lang (2018), who have studied defensive behaviour among Chinese physicians, find juristic, cultural and economic reasons for this. They particularly note that when the precaution costs are not borne by the physician, but the cost of being liable (e.g., reputation loss) is, defensive medicine is likely (Zhu, Li and Lang, 2018). Taken together, findings from the data analysis strongly support these claims and that risk perception is a dominant factor in priming the C-section in favour of C-sections.

Economics

The priming of the physician in favour of C-sections also comes about because of economic incentives. The indifference curve theory of consumer behaviour, in particular, may be applied to derive the supply curve of the physician from his/her preference-indifference pattern between income and leisure. Income is the sum total of expenditures on all goods and services. It is a source of (positive) utility to the worker. On the other hand, leisure is the time left with the physician after work. It is also a source of (positive) utility (Becker, 1965; Owen, 1971; Gronau, 1986).The principle of "utility" is discussed on page 20 of the literature review.

The more time devoted to work, the more would be the income of the worker in normal circumstances (though not in the public sector), but the less would be his/ her leisure-time. Therefore, the physician does not face a trade-off between income and leisure but more the time the physician spends in the public sector, less the leisure time but with no increase in income. Leisure time could be spent for resting, playing, listening to music, going to the movies, spending time with family, or other activities expected to bring satisfaction to life.

In the context of Bangladesh and in the study, leisure does not correspond to these common 'satisfaction' activities listed above. Physicians in the study emphasised their need to attend to private practice (increasing income further), doing household chores and in attending to their children.

Scheduling

The literature points to the scheduling of C-sections by clinicians for their own convenience as one of the key characteristics influencing C-section decision-making (Betran et al., 2018; Panda, Begley and Daly, 2018). Though physicians were not open about this in

the interviews, the quantitative data shows an association between daytime arrival of clients and the higher likelihood of C-sections. With the official working hours of the facilities between 8.30 am and 2.30 pm, the personal convenience of physicians in scheduling C-sections is a likely explanation for this. Though the physicians need to be on call after the day's working hours, this seems to be more of an exception than the norm.

However, this element of "convenience" leading to the scheduling of C-sections is also linked to constraints posed by the health system. The quotes on pages 101-102 under the results chapter outline specific challenges the physicians face due to the lack of anaesthetists in the evening hours, lack of power back-up for lighting in the evenings, transport challenges, household commitments and their own personal safety.

In their analysis of 33,233 deliveries from 36 hospitals in one state in the USA in 1989, Burns, Geller and Wholey (1995) found that the odds of performing a C-section increased between 6 am and 6 pm. More recent studies in the USA and UK (Martin, Hamilton and Osterman, 2015; Mathews, 2015) also indicate such a trend. The researchers call this as the convenience incentive or induced demand motivated by physicians' convenience. Lefèvre (2014), in his analysis of over 1.3 million births from a claims database in the USA, offers an alternate explanation and suggests that the physicians are merely decreasing the surgeries from their leisure times and posting them during their working hours and should not be seen as induced demand due to convenience.

Personal preferences:

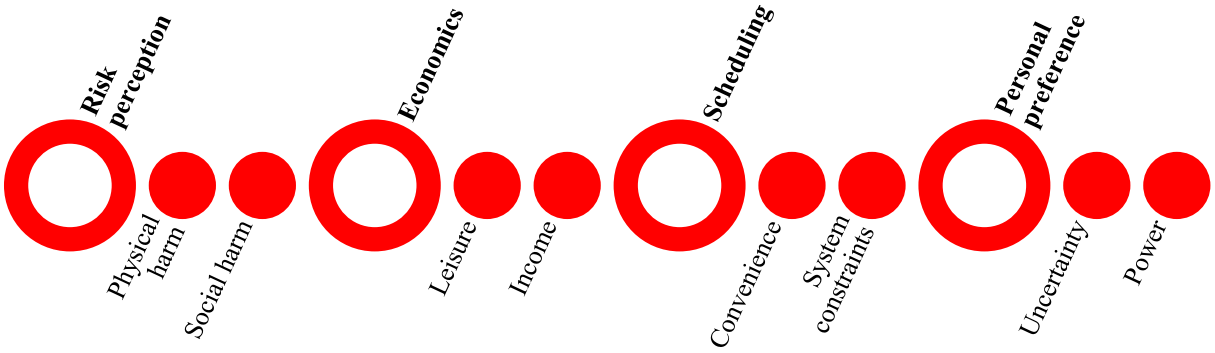
One of the themes that came out strongly from the physician interviews was of the personal preferences and choices of the physicians. This theme is in agreement with the professional uncertainty theory (Wennberg, Barnes and Zubkoff, 1982) which postulates that when standardized pathways are not followed, uncertainty prevails and places the personal preferences of the physician central to decision-making. The mixing up of absolute and relative indications of C-section by the physicians as demonstrated by the quotes on pages 92-93 of the results section and the high proportion of C-sections due to relative indications as demonstrated by the quantitative results (page 76 in the results section) are all evidence of the influence of the personal preferences of the physicians in C-section decision-making. This is further substantiated by the fact that 14 out of the 16 physicians interviewed had C-section themselves. They were able to find a medical indication justifying their own C-section but on closer analysis

of the interviews, this seems to be more than just coincidence. This should be seen as demonstrative of personal preferences taking precedence over established medical guidelines.

What seems to push the physician in these circumstances is the paternalistic attitude the medical profession brings with it and which is exacerbated in a labour situation when emotions run high and lives are possibly at stake (LoCicero, 1993). Of particular note, not one physician in the interview mentioned that they would ask the preference of the mother on the mode of delivery after explaining the pros and cons of the options at hand.

The physician wields enormous power to guide the decision in this situation. In a public sector facility, where most women seeking service have limited literacy, are poor and do not have the power to express their preferences, the power of the physician can increase substantially (Le Grand, 2003). The physician who is risk-averse, is in pursuit of increasing income and has the power to schedule a C-section according to her personal preference arrives primed at the clinical encounter with the patient:

Figure 18: Factors priming the physician



'The primed patient'

The involvement of pregnant women in shared decision-making and consent in the study seems minimal as both the observations and interviews with women demonstrate. Janis and Mann see the human as "a reluctant decision maker - beset by conflict, doubts, and worry, struggling with incongruous longings, antipathies, and loyalties, and seeking relief by procrastinating, rationalizing, or denying responsibility for his own choices" (Janis and Mann,

1977, p 15). They define four domains that people consider before making a decision: personal impact, impact on others, social esteem and self-esteem. These four domains are essentially the effect they feel the decision would leave on themselves and others, including their unborn babies, in the context of having a C-section. Time is the most critical factor in this model as decisions are taken under stressful conditions. In the context of emergency C-sections, women are made to take a decision weighing three antecedents: 1) awareness of a serious risk if nothing is done, 2) hope of finding a better alternative, and 3) availability of time to assess the situation and choose the alternate.

Trust:

Power and trust are discussed in the literature review as separately influencing C-section decision-making in the literature review on pages 18 and 24. Power includes social power (Goodyear-Smith and Buetow, 2001) and has the ability to influence interpersonal relationships. The physician-patient relationship bestows such social power on both parties. The willingness of the parties to share power and empower each other that makes the physician-patient relationship a successful one. Trust, ethics, communication skills, assertiveness and a sense of confidence within the interaction are all components for building a sound relationship and hence to influence shared decision-making (Goodyear-Smith and Buetow, 2001). The data from the study shows there is no attempt by both the physician and the patient to empower each other towards shared decision making.

(Dis)trust emerges to the forefront as a critical factor behind the decision-making process in the study. In the medical field, trust often implies the expectation of the patient in the physician to behave in a certain way (Pearson and Raeke, 2000). Patients expect competence, compassion, honesty, empathy, dependability and an active interest in their good will on the part of the physician. They also expect a good outcome (Pearson and Raeke, 2000). The patients in the study also seem to expect the same from the physicians in Bangladesh but seem to reconcile themselves that it would be too much to expect beyond a good outcome (a healthy baby) in a government facility in Bangladesh (quotes on pages 105-106 of the results section). Trust involves both confidence and reliance (Chandra, Mohammadnezhad and Ward, 2018). Physicians seem not to be doing much to gain the confidence of women and their families in the study. Use of both technical language and negative insinuation of what could potentially go wrong if they were to listen to the choice of the woman seem to be intimidating

and foster a lack of trust, rendering the physician's words unreliable. It is evident from the interviews that women do not trust the decision-making of the physician but have no option but to surrender to their power.

Reinforcements:

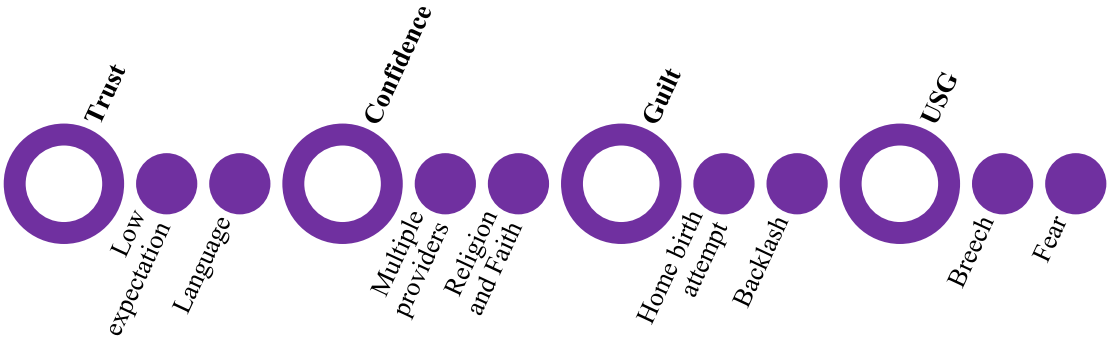
Confidence: With the social trust breached by the general sense that prevails on the poor quality of care in government-run hospitals, it also instils within women common indications for which C-sections are done in institutions. As stated earlier, many of these are not necessarily medically indicated. There seems to be greater confidence among women that conditions such as breech, big baby, and short stature, among others, are indications for a C-section. Their trust on these common indications learnt from the community are reinforced by the multiple providers they see during the course of their pregnancy. Though not confident of the C-section by the physician, the women balance this by substituting the trust in the government health system with their trust in religion and faith.

Guilt: Communication skills, confidence and assertiveness of women and their families in their interactions with physicians seem to be compromised for many reasons. Women in a few instances attempted home births and seem to carry a sense of guilt for meddling with the pregnancy and fear accusation by the physicians and other health care providers and demonstration of anger towards them. Agreeing to C-section is expected to save them from any potential backlash.

Role of Ultrasonogram (USG): An unexpected finding is the universality of ultrasonogram (USG) investigation. All women interviewed had at least one USG done during their pregnancy, and some of them had up to four USGs during the course of their pregnancy. USG at the early stages can identify presentations such a breech (though the purpose of USG in those stages is for determining viability of fetus and to detect fetal anomalies only), which is likely to correct itself during the course of the pregnancy. A sense of fear seems to be instilled in the minds of women based on such findings in the USG and women tend to carry this as a high risk all the way up to delivery, and it seems to influence their eventual decision-making. From a quantitative study done in Southern India, Divyamol, Raphael and Koshy (2016) identified a positive association between more than one USG in pregnancy and the likelihood of C-section. With limited literature available on this, the issue of the relationship between USG and C-sections is an area for future research in Bangladesh.

A patient with low trust and confidence on the physician and the health system who comes into a facility with a sense of guilt for attempting delivery at home for a pregnancy that was always thought to be complicated due to repeated USGs is primed for C-section. She substitutes her confidence for trust in religion and faith. This is summarized in figure 19 below.

Figure 19: Factors priming the patient



"The health system" – A silent primer

In the discourse on physician-patient communication, it is critical to underscore that this communication happens in the context of a health system that can both facilitate and inhibit this communication. Shared decision-making is about giving options to the patient, but for this to happen, the physicians need to have options. If the health system constrains the physician from having options at hand, the whole concept of shared decision-making fails to apply. In such a situation, discussing unavailable options may only lead to raising unnecessary expectations in the patient that the physician cannot satisfy. This could lead to a breach of trust (Hogberg, Lynoe and Wulff, 2008) and hence physicians are likely to restrict the options offered based on the reality rather than on what evidence-based care would deem necessary.

Goold and Lipin (1999) identify a set of organization and system factors that can aid communication and improve the physician-patient relationship. The availability and accessibility of both administrative and clinical personnel and their courtesy levels make the patients feel valued and respected while the continuous availability of covering nurses and physicians is believed to contribute to a sense of security.

Staff shortage: In the study, and also from previous literature, the shortage of staff in public health facilities emerges as a recurring theme. In particular, the lack of obstetricians and anaesthetists is a serious limiting factor in being able to provide round-the-clock emergency

obstetric care services, including intensive care and blood transfusion facilities, a requirement for the available physicians to feel confident about conducting normal deliveries and at the same time be ready for an emergency should it arise (Betran et al., 2018). Lack of such facilities also seems to be pushing the obstetricians into a defensive mode and toward risk aversion. The easy way out seems to be an elective C-section when all are available. This risk aversion is discussed under the theme of systems and skills on pages 97-99 in the results section.

While these health system factors can independently influence the C-section decision-making, they cut across and influence the motivation of physicians in delivering quality care and that of the women to build trust with the physician. These factors are all the more important as women in labour are first exposed to these environmental factors before they come into contact with a physician. The fact that the women who arrive at the facility for delivery had, in most instances, not met the physician or for that matter had not even come to the facility before, can be of importance within the time available to gain the trust of the woman and her family.

Antenatal care (ANC) is sought by women from different health facilities and practitioners (qualified and unqualified) in the study, and there has been no meaningful opportunity for the woman to build a relationship with the facility or the physician. Though this is important for relationship building, the counter-argument to that is that women who seek many ANC visits and with the same physician are likely to have C-sections, as the physician is likely to take greater responsibility for the outcome of the pregnancy and hence land up in a defensive mindset (LoCicero, 1993).

One of the interesting findings that emerges from the study is the indiscriminate use of uterotonics by traditional birth attendants, thus complicating pregnancies. Frequent C-sections in low-resource settings have been attributed to unskilled primary care practitioners who delay referral because they do not detect danger signs (Betran et al., 2018). There is a possibility in the study that women arrive in a condition where emergency C-section is the only option as they have been mishandled by unskilled workers at home or in other clinics, as some physicians noted; this was also echoed by few patients. However, in this study, where 131/200 C-sections were done pre-labour, this is unlikely to have been a major contributor.

One woman in the study expressed her desire for a C-section to be able to combine with tubal ligation. While the literature suggests that the convenience of combining tubal ligation with C-section (Sakala, 1993) is one of the reasons for the maternal request, this study did not

find it to be a common reason. This could very well be due to the fact that family planning services including permanent methods are freely available in Bangladesh.

Among the women interviewed, one woman made an explicit request for a C-section because it was a common procedure and her friends had had it. Confidence from peers and C-sections being a procedure of social status features in the literature, but the study did not find it to be a recurring theme in Bangladesh. However, the study did find economic reasons to be one of the factors for women choosing to stay in hospitals to deliver the baby, even when not in labour, as they did not have financial resources to return home and come back.

There was one instance when a woman had used some political connections to influence a decision for C-section. She was forced to do this as it had not been explained to her what was going on as she had continuous pain for over 24 hours and wanted the uncertainty to end. Physicians seem to cite occasional incidents as a more generalized phenomenon influencing the C-section decision-making.

These system issues identified by the physicians in the study are similar to the findings (pages 101-102 of the results section) of Panda, Begley and Daly (2018) from their systematic review and meta-synthesis of clinicians' views of factors influencing decision-making for C-sections. The main resource challenges identified included the following: a) not having enough experienced clinicians to facilitate a natural birth; b) lack of availability of personnel for emergency C-section and/or immediate availability of anaesthesia; c) lack of access to basic infrastructure including labour rooms and the condition of the labour environment; and d) lack of emergency care facilities such as access to an operation theatre, labour rooms and in general lack of access to facilities.

Zbiri et al. (2018) in their research on staffing levels in maternity units and C-section in 11 French hospitals concluded that higher staffing levels of obstetricians and midwives were associated with lower C-section rates. In their model, they project that a 10% increase in obstetrician and midwife levels would decrease emergency C-section rates by 2.5% and elective C-section rates by 3.4%.

There is very little within the system that seems to gain the confidence of both the physicians and the women. In addition to lack of human resources, lack of medicines and the need to buy from outside, informal user fees, lack of privacy and discourteous staff can trigger a C-section decision to avoid a poor quality labour experience (Betran et al., 2018).

Logistics: Two other evidence-based interventions that seem to be missing from what the physicians can offer the women include assisted vaginal deliveries and pain management. WHO (2018), in its guidelines for evidence-based intrapartum care, recommends the availability of epidural analgesia for a woman who needs it. A well-functioning health system is likely to offer this option to women, emboldening the physician as a countermeasure for women who might request C-section for pain. The physicians are also equipped with additional options to discuss with women and obtain their trust.

Data: A critical part of the health system is the health management information system. While the health facilities in the study were able to generate basic data on C-section rates, there was no standardized way of classifying the C-sections. Most of the physicians interviewed were not aware of the C-section rates of facilities, nor were they aware of their own C-section rates. In this way, basic audit data was not available to physicians to provide an overview about the way the facility was operating. In contrast, WHO (2018) finds quality evidence in audits and feedback in addition to compliance with clinical guidelines to be useful in reducing the C-section rate.

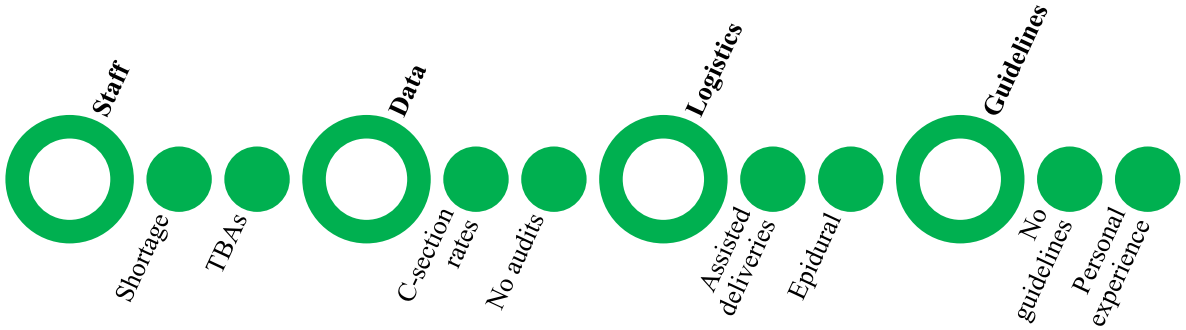
Guidelines: The study's finding that the C-section rate in Group 2 (nulliparous, single pregnancy, cephalic presentation, ≥ 37 weeks, either had induced labour or delivered by CS before labour) is 98.1% when compared to an average of 35-40% in many facilities (WHO 2017) is very high. WHO (2017) recommends that in such instances, there is a need to revisit the main indications for C-sections in this group and to review the clinical protocols on labour management of nulliparous women in spontaneous labour with a single cephalic term infant. Although implementing these evidence-based interventions might seem straight forward, they may not be so in reality. Kingdon, Downe and Betran (2018) note that the success of these interventions would vary according to the organisational power differentials and stakeholder commitment.

The study identified consistent evidence that physicians were reluctant to use international guidelines for evidence-based care and questioned their local validity. There were also few opportunities to keep themselves up to date and for them have access to adequate clinical resources. The lack of stakeholder commitment to address these gaps as observed in the study relate well to the observations of Kingdon, Downe and Betran (2018) in their evidence synthesis from 17 countries.

The physicians interviewed in the study consistently indicated that normal deliveries were best for women, and it should not be one of personal choice but based on medical indications only. They did recognize some of the common complications associated with caesarean sections, but in their own situation, 14/16 of them had all their children delivered by C-sections. This finding is very similar to those observed by Arikan et al. (2011) in their study of Turkish obstetricians on their preference for mode of delivery. However, it is interesting that the physicians in the study do not want to concede that the C-sections were their preference as they saw it as a safer option but one that was medically necessitated.

The health system which has serious staff shortage, where the available staff do not use data and standard guidelines due to their own skill limitation and logistic challenges as depicted below acts as a primer for C-sections emerging as a dominant practice.

Figure 20: Health system as the primer



The physician – Patient communication as a facet in driving C-section rates

With both the physician and patient primed towards a C-section decision even before they meet each other, their actual meeting and communication might be considered an opportunity to re-assess and possibly reduce the priming effects. The study finds that this opportunity is lost as physicians do not try to win back the lost trust by communicating proactively with the patient, nor do the patients try to resist the social power and authority of the doctors by bringing their perspectives into the communication. In contrast, this study found that the actions taken, and the words spoken or not spoken, make the patient-physician communication a predictable and a weak encounter risking the perpetuation of this priming

process into a dominant form of practice. Those critical (missed) opportunities in line with global literature are discussed below:

Physician skills:

In addition to lack of time and desire as factors leading to C-sections, the recurring theme in the study has been the perceived lack of skills of the physicians in being able to communicate adequately with the woman and her family.

Whatever the context in which medical decisions are made and consent is obtained, the Bangladesh Medical and Dental Council (2010) recommends that any physician

a) Be accessible and considerate to patients and their relatives
b) Listen to patients
c) Inform and discuss diagnosis, prognosis, treatment and care
d) Share up-to-date factual information in order to arrive at a decision
e) Maximize patients' opportunities for them to ask questions and make decisions
f) Respect the patient's decisions

These simple steps in any decision-making process involve good medical communication competence in the background of an array of factors.

It was interesting to note in the study that the physicians during the interviews mixed up counselling, information provision and the informed consent process as synonymous with communication and not as components of physician-patient communication. The last the physicians attended any form of training on the subject was during early medical school as part of their community medicine curriculum. Most of them claimed to have learnt it from their teachers observing them (pages 99-101).

Kurtz (2002) argues that the medical curriculum has largely ignored the importance of physician-patient communication. The biomedical model demands that the medical curriculum is structured only around medical technical knowledge, physical examination and medical problem-solving. Communication was, for a long time, missing from the list. Thanks to proponents like Kurtz and others, the importance of communication in physician-patient relationships is gaining traction although it remains largely a phenomenon of the developed world. Very few countries in the global south including Bangladesh (Islam and Jhora, 2012) have included physician-patient communication as part of their medical curriculum.

Kurtz (2002), in his model of communication, makes four important assumptions:

1) Communication is a basic clinical skill.
2) Communication is a series of learned skills and a corollary that communication is a learned skill rather than a personality trait.
3) Experience alone can be a poor teacher.
4) Teaching communication skills involves the following: a) systematic delineation and definition of skills to be learned, b) observation of learners performing the skills, c) detailed and descriptive feedback, d) practice and rehearsal of skills, and e) repetition.

Of the above assumptions, it is important to recognize that doctors cannot be assumed to be born with excellent communication skills (Ha and Longnecker, 2010). It is interesting that many physicians in the study acknowledge their limitations in communication and remain open to training in the area.

While this recognition is helpful, there needs to be sufficient motivation and incentive for self-awareness, self-monitoring and training (Lee and Garvin, 2003). Feedback has also been identified as an important measure in improving communication skills (Brown et al., 1999). This and the work of Silverman, Kurtz and Draper (1998), as discussed below, are mentioned in the literature review on pages 22-23.

Silverman, Kurtz and Draper (1998) in their book on skills for communicating with patients, identify three skill areas: a) content skills on what the physicians say, b) process skills guiding how they say it, and c) perception skills on detecting what patients are thinking and feeling when listening to what physicians are saying. While content and perception skills are intra-personal, the perception skills are inter-personal. As the physicians identified in the study, whatever focus is on communication skills in a context like Bangladesh is on the process skills. The process skills revolve around listening skills, setting up explanation and planning and structuring interactions. This is sometimes referred to as counselling and is what the medical curriculum covers in a patchy manner. The content and perception skills are given secondary importance (Kurtz, 2002).

In regard to content skills, sound, up-to-date technical knowledge is needed. The physicians in the study claimed that they hardly had any refresher training and were not keeping themselves up to date with new developments in their field. That the physicians interviewed for this study use techniques such as epistitomy, a practice that is discouraged in modern medicine, is illustrative of the technical limitations among the physicians in the study.

Patient anxiety:

The study finds that patient preference for C-section is recorded in case sheets as the reason in 22.5% of the cases. However, this does not corroborate with the Options tool analysis, which showed physicians made no effort or only minimal effort in eliciting and discussing patients' preferences in 97% of observations. As explained on page 84 under the results section, the Options tool uses a scale of 0-4 to define the level of effort: no effort (0), minimal, moderate, skilled and exemplary effort (4). The women in their interviews confirmed this lack of effort on the part of the physicians in their interviews (pages 105-106 under the results section). There is no way for the physician to know the preferred mode of delivery from the mother unless the options are discussed with her.

When asked what physicians thought was driving the high C-section rates, the physicians frequently referred to maternal request as the major reason for high C-section rates. The same physicians often contradict themselves, making reference to C-section decisions not being one of personal choice (both for the physician and the patient) and as only guided by medical indications in their institutions, implying that maternal request for C-sections are not honoured in their institutions unless there is an underlying medical indication.

The physicians often indicated that they have limitations in providing emergency care to women in labour, particularly during late hours, but they do not acknowledge that this could be the reason for some women preferring C-sections when expert care was available during the day hours. Women wanting a C-section is repeatedly emphasised by the physicians in the study, but why the women may want it and what could be the physician/health facility's contribution to it was rarely acknowledged.

While the physician acknowledges personal and system-related limitations in offering evidence-based care at all times, she is unwilling to concede these as potential reasons influencing the C-section decision-making. A case in point is the practice of episiotomy. Patients and their relatives (page 100) repeatedly mention their fear of episiotomy and how they prefer C-section over episiotomy, which is not a routine requirement anymore and has the potential to cause more harm than good (WHO 2018). However, as shown on page 76, episiotomy seems to have been done in 31% of the cases observed. Given that normal deliveries constituted only 35% of the deliveries, this translates to episiotomy being a near universal

practice for women in the 2nd stage of labour. The fear of episiotomy in the patients and their families seem to be justified.

The OPTION 5 Item 3 (discussing the pros and cons of options) also identifies that no effort or only minimal effort for shared decision-making was made in 97.3% of the observations. Even if the proportion of maternal request/patient preference as indicated in the case records was to be true, those preferences are made without the woman fully understanding the pros and cons of the options.

In their systematic review and meta-analysis of observational studies on women's preference of C-section worldwide, Mazzoni et al. (2011) concluded that globally the preference for C-section was 15%, and this decreased to 10% when women with previous C-section were excluded. Lower rates of preference were found in other studies (Menacker, Declercq and Macdorman, 2006; Souza et al., 2010). Sanavi et al. (2012) in their qualitative studies in Iran conclude that the fear of the unknown and lack of understanding about the true pros and cons of C-sections contribute to maternal requests where it happens.

There seems to be a strong sense among women that C-sections are better for their babies than normal vaginal deliveries. In addition to the phenomenon of anticipated regret, women seem to think that C-sections are safe for their babies. Litorp et al. (2013) found a similar perspective in their qualitative work with Tanzanian women in a tertiary care setting. Some of them were drawn by previous negative experiences such as spontaneous abortions and stillbirths. Religion, as with emergency C-sections, seems to play a pivotal role in calming the anxiety of the women and in preparing them for the C-section.

Three close phenomena come into play in priming the minds of the patient here: faith, confidence and trust. Giddens (1990) suggests that faith and trust are similar but very different from confidence. Trust judgements are made in the context of uncertainty and ambiguity about the motivation of others. Confidence, though, implies a situation of relative stability and security where judgement about others are made on what is predictable (Gambetta, 2000). Women tend to get confidence from their community in indications and safety for C-section and have to trust the physician in the lead up to the decision-making. Religious faith seems to aid this decision-making process as being a catalyst bringing the confidence and trust together.

In their synthesis of drivers of excessive C-section use, Betran et al. identify that contrary to popular belief, most women in the world do not prefer C-sections. It is clear from the study that only a very small proportion of the women preferred C-sections, and there is

nothing to suggest that maternal requests are drivers of C-sections in Bangladesh. For women who prefer a C-section, fear of pain and fear of negative effects on sexual relationships are cited as some of the common reasons. However, in this study, such reasons were not commonly observed, but the study agrees fully with their finding on women commonly citing C-section as safe for their baby. There is nothing to suggest that they consider it safe for themselves. While the sub-optimal quality of care and poor experiences in the government hospitals seem to be contributing to their decision-making, the convenience of tubal ligation and previous negative experiences of vaginal birth seem to be contributing to the decision-making to a small extent. The role of media and the influence of their husbands don't seem to be major contributors to the decision-making in the study.

Non-respectful health system:

Providing respectful patient-centred care can be expected to aid in building rapport, developing trust and influencing shared decision-making (Goold and Lipkin, 1999; Pearson and Raeke, 2000; Gilson, 2006). Trust is important in a physician-patient relationship as it elicits greater cooperation between the two parties and has a direct therapeutic effect (Mechanic, 1996, 1998).

Though evidence-based and in line with universal maternal health rights, the study finds a low-level of compliance in providing respectful maternity care, the offer of companionship and basic rapport building communication. As outlined in the results section (page 71), visual privacy (an important feature of respectful maternity care) was observed in 36.2% of instances at the time of reception; 52.0% in the 1st stage of labour and reaching a maximum of 64.8% in the 2nd stage. Respectful maternity care is the right of every pregnant woman according to the charter on maternal health (The White Ribbon Alliance for Safe Motherhood, 2012) and can help reduce C-section rates (WHO 2018). The fact that visual privacy is not available at all times should be considered an opportunity lost to gain the trust of the women in the health system and by the health care providers. Trust in the health system is seen as an important requisite for gaining the confidence of women to participate in shared decision-making (Gilson, 2006).

Islam and Jhora (2012) indicate this to be a widespread limitation in Bangladesh, in particular when it comes to caring for the poor. In their review of the physician-patient relationship in Bangladesh, they emphasize the physician-patient relationship as being the

foundation of contemporary medical ethics and underscore its criticality in providing quality health care services. They identify that maintaining a professional relationship, upholding the dignity of patients and prioritizing their privacy are generally deficient in Bangladesh.

The study's quantitative findings found a statistically significant association between the mode of delivery and the following situations: a) when women were asked if they would like to have a companion by their side, and b) when the plan of delivery was discussed with them. While companionship and discussing delivery options with women have been associated with higher likelihood of normal vaginal deliveries in other studies (WHO, 2018), companionship was offered to only 24.2% of women in the study. In contrast to one-way communication, dialogue, listening to interests and encouraging mutual respect have an effect on building trust (Warren, 1999; Thiede, 2005).

Providing evidence-based care is also a form of respect and an opportunity to build trust. The study establishes that respectful maternity care, the offer of companionship and basic courteous rapport-building communication, which are constituents of building trust and aiding shared decision-making, happens to a very limited extent in the study. It should be noted that non-adherence to evidence-based care is not simply seen as an individual matter of choice but should also be seen as a decision made within the context of the available resources and constraints posed by the health system (Kingdon, Downe and Betran, 2018).

The lack of pain management and assisted delivery options recorded through both the quantitative and qualitative results (pages 76, 101&102) in the results section) are illustrative of the lack of support of the health system for physician to provide all options to the woman and act in her best interest. Poor infrastructure such as lack of adequate lighting and generators seem to be additional constraints in the physician not being able to operate to full capacity and hence communicate in the best interest of their patients.

The physicians' own interests and limitations and constraints posed by the health system seem to be largely influencing the limited communication in the lead up to decision-making in C-sections.

Theoretical underpinning behind physician-patient relationships

Physician behavior:

Two elements feature in many relevant frameworks in the existing literature that explain the non-altruistic behaviour of the physicians: income-leisure and workload (Stavropoulou, 2012). Physicians not communicating systematically with the women and their families in a manner that would involve them in shared decision-making is likely to be influenced by concerns around workload, income-leisure, ethics, supplier-induced demand, maintaining their professional reputation and maintaining autonomy in decision-making (Scott, 2000). The themes identified in the interviews with the physicians (workload; work-life balance; personal preferences and external influence) speak well to this and are discussed below.

Though several models have tried to explain workload as an argument in explaining physician behaviour, they are not discussed in any detail (Scott, 2000). While studying workload of physicians in Tanzania, a country with serious health staff shortages, similar to the situation in Bangladesh, Maestad, Torsvik and Aakvik (2010) observed that the physicians' claims of excess workload may not always be the case. While it is reasonable to expect that the lack of adequate human resources could impact the quality of care provided in emergency situations, the study from Tanzania identified there was slack time for the physicians even after discounting for their clinical and administrative work on the busiest of days. The study did not collect specific data on the daily schedules of the physicians and thus it was not possible to validate or refute this finding from the study in Tanzania.

Irving et al. (2017) in documenting international variations in primary care physician consultation identified that physicians in Bangladesh on average spend only 48 seconds with their patients. Though not in the context of obstetric practice, this finding on low consultation time raises concerns about the physician-patient communication culture in Bangladesh. Short consultation times have been associated with poor communication with patients ((Nizami, Khan and Bhutta, 1997; Jin et al., 2015). While it is difficult to determine the true workload of the physicians in this study and its impact on decision-making, workload in general has been determined as one of those factors influencing clinical behaviour (Batt and Terwiesch, 2012). This is a topic for further research. The issues of income-leisure, supplier-induced demand maintaining autonomy in decision-making and professional reputation are discussed later in the context of communication skills of physicians.

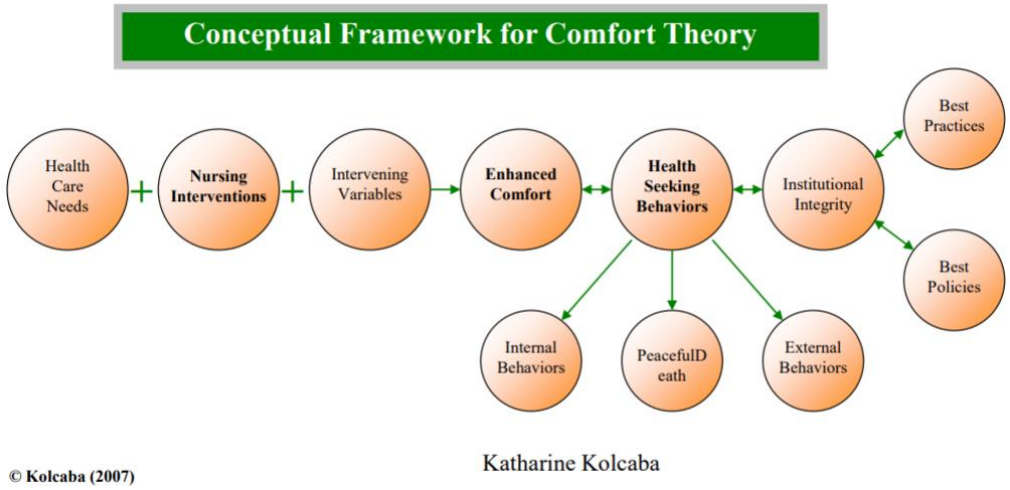
With limited information coming from the physicians on the pros and cons of the various modes of delivery and the pressure of time imposed, women and families are left to consider these factors specifically in consenting to C-sections. The qualitative interviews with the women who underwent emergency C-sections consistently reflected the fact that they were under pressure in the lead up to the decision-making process. This pressure emanated from different sources, but most importantly from the physicians themselves. Women are not able to exercise their power in the labour situation and, rather, surrender to the decision of the physician. While their behaviour seems to be influenced by the physician behaviour, the study also finds certain inherent behaviours of patients and theories behind such behaviours, and this is discussed below.

Patient Behaviour:

The expression of women on being pushed to the brink in decision-making with such emotional strain and calling upon divine support for their confidence has a strong theoretical basis. Kolcaba (2003) defines comfort as ease, relief and transcendence, and asserts that comfort can happen in a physical, psycho-spiritual and socio-cultural context. A state of relief is achieved when an intervention helps alleviate discomfort and moves the patient into ease, a state of psychological contentment and a state of transcendence that allows him or her to rise to the challenge. Though Kolcaba's (2003) theory focusses on nursing practice, it has a lot of relevance to the physician-patient interaction too in that the medical paradigm is also one of providing ease, relief and transcendence.

Smith (2018) identifies facilitating, obstructing and interacting forces in the pursuit of the patient towards comfort. Obstructing forces are the health care needs of the patient in a particular setting. In the case of labour, it is the pain and the urge to deliver soon; facilitating forces are the interventions that aim to provide holistic comfort care in a conducive environment; the interacting forces or intervening variables are those that augment the health care needs (obstructing forces) and the comfort care (facilitating forces). The intervening variables by definition are those that are beyond the control of the physicians, such as social support, prognosis and the financial situation of patients. The augmenting and facilitating factors come together to negate the effects of the obstructing factors to provide a positive experience to the patient.

Figure 18: The conceptual framework of the comfort theory



While a woman presents with either labour pain or with some form of anxiety about her delivery, and is received in a hospital environment where communication, trust and collaborative relationship (all facilitating factors) are compromised, the role of intervening factors becomes important. The lack of financial power to make a choice seems to drive women and their families to derive their confidence and comfort from spiritual support. However, C-sections are likely to provide them with relief more than ease and transcendence.

Another element that seems to be influencing the women in their decision-making is an anticipatory regret if they were not going to go ahead with a C-section and the baby gets harmed. This has been explained in the literature by the regret theory (Loomes and Sugden, 1982). This theory states that at times of uncertainty and when the option exists, people are likely to consider the regret that they might have if they were to make a wrong decision. This phenomenon of anticipated regret is likely to make them risk-averse. This being a recurrent theme of the interviews could be one of the underlying reasons for women to concede to C-section decisions to avoid any regret in the future.

Hawley et al. (2008) and Morris et al. (2009) do recognize cultural challenges in engaging patients in shared decision-making in the context of cancer. Their model puts forward the interaction between several key patient factors (attitudes, belief systems, spirituality, fatalism and acculturation), family factors and community factors on one side of the spectrum and the health care provider/system on the other side. In order to participate in shared decision-making, the patient first must be informed in order that he/she has an accurate understanding

of the pros and cons of their options. Researchers have shown that patients who are less educated and with low health literacy (as is the case in this study) are likely to have lower knowledge about their care than those who are more educated and possess greater health literacy

In a district hospital setting in Bangladesh, where women who seek services are most often from the lower socio-economic strata and have limited literacy, the onus falls more on the physicians to use techniques for conveying complex information in simple formats. Lack of such techniques was established in the study both during the observations and the interviews. The very low score overall in the OPTION 5 tool demonstrates the low involvement of women in the decision-making process.

In their work on patients with colorectal and breast cancer, Hawley et al. (2008) and Morris et al. (2009) observed that patients of minority race/ethnic background were much more likely to endorse the role of spirituality in their care-seeking when compared to their white counterparts. Though poverty and illiteracy have not been singled out as contributing to this behaviour, in this study, it is very likely that these factors have contributed to the importance placed on spirituality and faith in how they engaged with the physicians. Hawley et al. (2008) and Morris et al. (2009) also identify that poor communication and lower levels of patient trust in their physicians lowers their engagement in shared decision-making.

The idea of shared decision-making among patients who lack trust in the health care system and others who believe that decisions will have to be taken by their physician may be a difficult concept. Research, though, shows that the communication style of the physician can have a big influence in eliciting the participation of patients in decision-making (R. L. Street, Jr. et al., 2005). Physicians need to be sensitive to this and will need patience to carry it out. They will also need to respect and involve family members in decision-making where women desire it.

The hospital environment seems to have a bearing on the decision of the woman seeking or agreeing to C-section. Few women who came to the hospital pre-labour observed other women going through labour and agreed to a C-section with no resistance when proposed by the physician, in some instances even seeking a C-section to avoid experiencing what they were seeing. Lack of visual and audio privacy as the study identified (and discussed on page 71 of the results section) seems to have had an impact on the decision-making of women towards C-section. It is interesting to note that women, in general, were not pre-sensitized about pain, but

their physical observation of other women in pain seems to have prompted them to think about pain. This view is contrary to that of the physicians who claimed that women's ability to tolerate pain had diminished and they seemed to be seeking C-sections to avoid pain.

Though not discussed in the literature review, the health belief model offers a useful framework to explain the thinking of the women behind their decision to consent for C-sections. The health belief model makes three critical assumptions: the person 1) feels that a negative health condition can be avoided, 2) the negative health condition can be avoided by taking the recommended action, and 3) is in a position to take the recommended action. There are six constructs as below in the expanded version of the model:

Health belief model and C-section decision-making (perspectives of women)

Concept	**Definition**	**Application**
Perceived Susceptibility	One's opinion of chances of getting a condition	Injury or death of the baby
Perceived Severity	One's opinion of how serious a condition and its consequences are	Very severe including the possibility of the baby dying
Perceived Benefits	One's belief in the efficacy of the advised action to reduce the risk or seriousness of the impact	C-section as a safe procedure which can help avoid anticipated regret
Perceived Barriers	One's opinion of the tangible and psychological costs of the advised action	Pain for self and not being able to do chores but manageable
Cues to Action	Strategies to activate "readiness."	Poor communication and misinformation from various sources
Self-Efficacy	Confidence in one's ability to take action	Faith and religious beliefs seem to substitute for confidence

Al-Battawi and Ibrahim (2017) have used the health belief model for predicting factors influencing women's decision regarding mode of delivery in Egypt. In their quantitative study, they observed that women who preferred normal vaginal deliveries scored high on perceived benefits and low on the perceived severity of vaginal births. Women who preferred C-sections also scored high on the perceived benefits but low on the severity of C-sections. On cues to action, advice from professionals had been observed to be a key factor determining the mode of birth. These findings are in line with the study findings.

Based on available data, Betran et al. (2018) summarize that interventions that prioritize positive human relationships, promote respectful and collaborative teamwork, addressing clinicians' beliefs and attitudes and women's fear of labour pain and quality of care might be effective in reducing medically unnecessary C-sections and safely improving the physiology of labour and childbirth.

Emergency and elective C-sections – Similarities and differences:

Recalling the definition on page 23 of elective and emergency C-sections, Robson, Hartigan and Murphy (2013) defined elective C-section as a planned procedure (greater than 24 hrs) carried out during routine working hours at greater than 39 weeks, in a woman who is neither in labour nor for whom labour has been induced. All other C-sections should be deemed an emergency or more appropriately as non-elective. Though such clear lines between emergency C-sections and elective C-sections in this study could not be easily made, there were certain exclusive findings in the interviews with women who had undergone elective C-sections (loosely defined as women who were not in labour at the time of admission). This has novel implications for the thinking about C-section rates.

Most of the literature globally is around decision-making in elective primary C-sections. As in the case of emergency C-sections, the data show the discussion prompted by the consent form is very limited as is the shared decision making that should have preceded signing the form. Despite having more time available to make a decision, there seems to be very little communication both in extent and in nature in the lead up to consent for C-section decision-making, as gathered from the interviews with women who had undergone primary elective C-sections. The women interviewed were not necessarily aware if their C-sections were categorized as emergency or elective. In the minds of most women, all C-sections were

an “emergency,” as failure to proceed with it could have an impact on the well-being of their baby.

In the case of elective C-sections, two themes were prominent: safety and faith. Among the women who underwent elective C-sections, most women were convinced that C-sections were the safe option for their baby. Their perceptions had been distorted by the multiple service providers they came into contact with; in the case of elective C-section, the traditional healers seem to have had a greater influence. The vast majority of the women interviewed had come into contact with traditional healers very early in their pregnancies. Seeds for the final decision seem to have been planted very early in their pregnancy by making the women anticipate a difficult pregnancy course and poor outcome. C-section seems to become the mitigation measure for the anticipated bad outcome of the pregnancy and becomes a lot easier to accept when the physician proposed it. With these strong traditional beliefs, the women were more bound by faith. Faith had a major part to play in elective C-sections as women who had made a decision to go ahead with C-sections were also inclined to firmly believe that blessings from their elders and God would protect themselves and their baby from any small risk that C-sections might pose.

Women who underwent elective C-sections in general had misplaced confidence on the safety of the C-sections, both for themselves and for their babies, and were plagued by misconceptions when compared to their emergency counterparts as demonstrated by the quotes on pages 111 and 112. Reasons such as previous negative experience and consideration of their current pregnancies as precious, as also cited in the literature (Betran et al., 2018), and emerged as the reasoning for elective C-sections in some women.

These similarities and differences between emergency and elective C-sections will have important bearing in designing holistic community-level interventions to optimize C-section rates in Bangladesh.

Connecting the dots on factors driving C-section rates

The literature suggests that C-section decision-making involves a complex interplay of factors, and these factors could vary from country to country. In this study, it has been possible to delineate these factors and group them under physician, health system and patient factors. This framework for clustering factors will be useful for practice, policy-making and research.

The study started with the main aim of understanding the physician-patient communication in the lead up to the decision-making for C-sections. The study chose the end point of consent as the end of the decision-making process. While written consent was indeed the final step in the decision-making process, the study was able to establish that written consent was only a formality. This signed form does not represent an agreed, discussed decision but rather a document that both the physician and patient views as a safety measure for the physician to avoid blame.

The study was able to establish that communication between the physician/other health care providers and the woman in labour was very minimal. The paternalistic model of care is still prevalent in Bangladesh. There is very limited information provided to women, and more importantly, the current mechanisms are not conducive to implement shared decision-making.

Physicians lack communication skills, and their technical skills to make distinctions between absolute and relative indications were found to be questionable in this study. Patients, on the other hand, are misinformed by various sources, and the decision-making process is not based on an exchange of true knowledge. The environment in which the decision is made is constrained by a lack of adequate human resources and a lack of audio and visual privacy when communication is taking place. This creates a spiral of mistrust between the woman and the physician, who is the front face of the health system.

As the physician and the women communicate, the physician's defensive mindset is propelled by the risk of any threat from the patient and her family or from peers and media if anything were to go wrong. The woman and the anxious family, on the other hand, are hoping that the physician is making the "right call," and they tend to rely on their prayers and religious beliefs when the final decision is made.

The study establishes that the communication is not restricted to the physician and the woman in labour alone. The role of nurses and families are also key. There are external influences on both the physician and the woman, including political, media and other social pressures, but these seem to be small contributors only. These sporadic incidents dominate the minds of both the physicians and the women, perpetuating the mistrust.

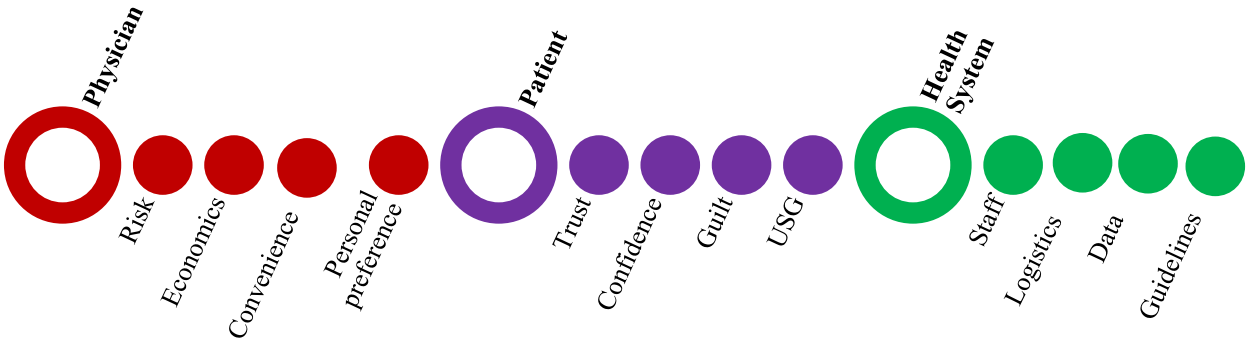
The power dynamic in the interaction is complex, as the study establishes. Clearly, the physicians seem to hold the most power, based on their technical knowledge. However, by fearing a backlash from patients and their families, their defensive mindset for a moment hands the power over to the woman. The woman, though, tends to hand back the power to the

physician, as she fears blame and stigma from the wider community for not making the "right decision" to save their baby.

A situation presents where the woman who is now sensitized to the dangers and risk-averse, based on misinformation, comes into contact with an already risk-averse physician, the mutual risk perceptions become a dominant feature in C-section decision-making. Figure 21 below provides a schematic representation of the physician, patient and health system factors in play in the decision-making process for C-sections. The risk perception of the physician of the harm of not performing a C-section and the lack of trust of the patient in the willingness of physicians to perform normal vaginal deliveries, which are part of a constrained health system, seem to be propelling the C-section decision-making in public sector hospitals of Bangladesh. This is summarized in the below schematic:

Figure 21: Factors influencing C-section decision-making

The priming factors



Factors directly impairing communication

It becomes critical to look at this challenge in a holistic manner and to be prepared to improve physician-patient communication and to address the underlying physician, patient and health system gaps in Bangladesh to make a difference in the rising C-sections.

Strengths and limitations

The study draws its strengths from its mixed-methods research design, hence supporting triangulation and complementarity. The study does its best to distinguish emergency and elective C-sections to see if there are any differences in decision-making. The study's focus on primary C-section bypasses the need to look closely at situations of previous C-sections where there is a near-universal practice of repeat C-sections in Bangladesh. The eight target hospitals are representative of all district hospitals in the country and represent all administrative divisions of the country.

The study only explores the perspectives of women who had undergone C-sections, and how decisions were fashioned, and it did not deal with the preferred modes of delivery. The study does not obtain perspectives of nurses, who seem to play an important role in the communication that happens in labour situations. As explained earlier, the lines between emergency and elective C-sections were not clear cut, and it is possible that a few cases might have been wrongly categorized. The physicians in several instances could have given the answers perceived to be medically or socially acceptable and not what they actually thought, and all answers need to be taken in context and corroborated with observations. Midwives are a new profession in Bangladesh and can be expected to play a dominant role in the future. This is an important element that the study could not cover at this point in time.

This chapter summarized the analysis of the results from the study and grouped the drivers of C-section decision-making and hence the rates around the physician, patient and the health system. The final chapter will discuss policy and practice implications and provide pointers for future research.

Chapter Six – Conclusion

The study was designed and conducted over three years and achieved its fundamental aim of studying factors influencing decision-making for C-sections in public sector hospitals of Bangladesh and their impact on C-section rates in the country. The study examined key physician, patient and health system factors behind the decision-making process. The results and discussion chapters have indicated several areas of relevance to practice, policy and future research. This chapter elaborates on these.

It should be noted that this study is part of a larger research study, which is likely to identify many other factors behind C-section decision-making in public sector hospitals of Bangladesh. This study, however, focusses on the communication between the physician and the patient in the lead up to C-section decision-making. The recommendations from the larger study are to form the basis for developing a national action plan to optimize C-section decision-making in public sector hospitals in Bangladesh (to be called an action plan from here onwards). The contribution of the study to the existing body of knowledge is first outlined below:

Contribution to the body of knowledge:

1) Though the themes emerging from the study are in line with existing literature and theories, the study is the first of its kind in Bangladesh, establishing the specific role physician, patient and health system factors play in influencing C-section shared decision-making in public sector hospitals of the country.
2) The study has established that the physicians and patients arrive at the clinical counter with their minds already primed for C-section. C-section has established itself as a dominant form of practice in Bangladesh. The consent form has become an artefact of a process, and the data in this study demonstrates that the decision comes about through factors outside of the formal consent process, though the clinical encounter and the patient-physician communication provides an opportunity to reduce the priming effects. Lack of meaningful communication is a lost opportunity for reducing the priming effects.
3) Physicians have a defensive mind-set in their approach to decision-making. A fear of abuse and harassment by the public and professional disrepute that may arise from not

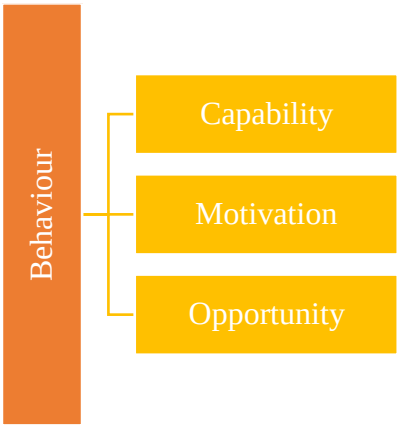
providing C-sections seem to be the drivers of the decision-making among the physicians in emergency situations. The need to preserve leisure time, including that for their families and time for private practice to maximize income, has an influence in C-section decision-making in elective situations, though the distinction between emergency and elective C-section was not clear always.

4) The study has identified that misinformation is prevalent among women and their communities. Multiple providers are providing incorrect and inconsistent information, which leads women to have a false confidence about the need for and safety of C-sections. The misinformation seems to spread by word-of-mouth in the community and sets up a vicious cycle of misinformation. Excessive use of USG seems to be prevalent in the districts and needs to be studied further. Patient and family anxiety also seem to be propelled by practices such as routine episiotomy.
5) The study has brought to the forefront various issues within the health system, particularly human resource and infrastructural challenges in providing quality emergency obstetric care. The study also finds the lack of pain management and assisted deliveries to be limitations in the provision of evidence-based care, which could help optimize the C-section rates in the country. These features are reflective of a health system that does not provide due respect to its clients.

Behavioural interventions:

With the above conclusions, the discussion below focusses on how a change in behaviour among the physicians, patients and the health systems could plausibly be brought about to improve shared decision-making in the context C-sections and policy changes that can support that. Michie et al. (2011) designed the behaviour change wheel, a new method for classifying behaviour change interventions. In their behaviour system, capability, motivation and opportunity interact with each other and influence behaviour, which in turn further influences the three components of the system. The below schematic represents the behaviour system:

Figure 22: Schematic representation of the behaviour system (Michie et al., 2011)



While capability refers to knowledge and skills, motivation comprises those brain processes including emotions and analytical thinking, which direct behaviour. Opportunities are those factors that lie outside the individual that facilitate or initiate the behaviour. Any intervention is likely to change one or more components of the above behavioural system. Policies are designed to enable or support such interventions that could lead to behaviour change. In their framework linking policies, interventions and behaviour change, Michie et al. (2011) classify interventions as below:

Figure 22: Types of behavioural interventions (Michie et al., 2011)

Interventions	Definition	Examples
Education	Increasing knowledge or understanding	Providing information to promote healthy eating
Persuasion	Using communication to induce positive or negative feelings or stimulate action	Using imagery to motivate increases in physical activity
Incentivisation	Creating expectation of reward	Using prize draws to induce attempts to stop smoking
Coercion	Creating expectation of punishment or cost	Raising the financial cost to reduce excessive alcohol consumption
Training	Imparting skills	Advanced driver training to increase safe driving
Restriction	Using rules to reduce the opportunity to engage in the target behaviour (or to increase the target behaviour by reducing the opportunity to engage in competing behaviours)	Prohibiting sales of solvents to people under 18 to reduce use for intoxication
Environmental restructuring	Changing the physical or social context	Providing on-screen prompts for GPs to ask about smoking behaviour
Modelling	Providing an example for people to aspire to or imitate	Using TV drama scenes involving safe-sex practices to increase condom use
Enablement	Increasing means/reducing barriers to increase capability or opportunity[1]	Behavioural support for smoking cessation, medication for cognitive deficits, surgery to reduce obesity, prostheses to promote physical activity

The above framework is used in making recommendations to positively influence shared decision-making in C-sections in public sector hospitals of Bangladesh.

1. The study firstly establishes that the intra-institutional C-section rate is high in the public sector hospitals of Bangladesh. The high utilization of C-section for low-risk cases based on Robson's classification demonstrates the need for revisiting the clinical

protocols on labour management of nulliparous women in spontaneous labour, in particular with a single cephalic term infant, and training physicians accordingly. Refresher training on the latest evidence-based practice in obstetrics should be conducted for the clinicians.

2. Though now recommended by WHO (2015) as a global standard for assessing, monitoring and comparing C-section rates across facilities, there is very limited awareness of the utility of Robson's classification in the facilities. The data from each of the facilities should be compiled on a periodic basis and published. Feedback and C-section audits should be conducted in the facilities on periodic intervals.

   Based on available literature, WHO (2018) finds high certainty evidence for implementation of evidence-based clinical practice guidelines, caesarean section audits and timely feedback to health-care professionals to reduce caesarean births. Kingdon , Downe and Betran (2018) find qualitative evidence for lack of training, skills or experience among physicians as a barrier to change and recommend that interventions should have a training component based on local needs.

3. One of the major reasons for the distrust of the patient and the defensive mindset of the physicians seems to be the health system constraints. According to the physicians, the health facilities have limited human resources and physical infrastructure challenges. The need for additional human resources in the health facilities against the workload of the current human resources should be carefully studied. Midwifery is a new profession in Bangladesh. WHO (2018), in its publication on non-clinical interventions to reduce C-sections, recommends a model of staffing based on care provided primarily by midwives with 24-hour back-up from an obstetrician without other competing clinical duties in the context of rigorous research in different settings. Going forward, Bangladesh would need to find a strong place for midwives within the health system.

4. Misinformation is prevalent among women on the safety and common indications for C-sections giving a false sense of security in the use of C-sections. Health education targeting women, families and communities should focus on making them understand the pregnancy process, different possible modes of delivery, and the pros and cons of each of them.

WHO (2018) recommends that health education for women should be an essential component of antenatal care. Childbirth training workshops, nurse-led relaxation trainings, psycho-social couple-based prevention programmes and psychoeducation for women with fear of childbirth are expected to reduce C-section births when combined with targeted monitoring and evaluation.

5. The study identifies positive associations between offering companionship, respectful maternity care and mode of delivery. WHO (2018) also recommends that a companion of choice be present right through the duration of labour. Respectful maternity care is a right of every woman and has been proven to improve the overall birthing experience (WHO, 2018).
6. Over-use of ultrasonogram and use of uterotonics by untrained personnel at home seems prevalent as identified by the study. More research on the magnitude and consequences of these issues is needed, and steps should be taken to curb them.
7. The study identified that there are multiple dyads in communication in the lead up to C-section decision-making, namely physician-patient, physician- family, nurse-patient and nurse-family. The role of nurses and the family in the decision-making process need to be further studied closely. Notwithstanding, and until the midwifery workforce comes full-fledged into the health system of Bangladesh, nurses will also require training in shared decision-making.

Policy implications:

For behavioural interventions to work, policy facilitation is required. "Public policy is defined as a decision taken by the government on behalf of it" (Blank and Burau, p.2 2010). Health policies being public policies are created with the objective of ensuring good health of the public. There are three types of health policies: regulatory, distributive, and re-distributive. Regulatory policies impose limitations and constraints on the actions of health care actors. The constraints are aimed at curtailing abuse of privileges conferred on them by virtue of the position they occupy in the health sector. While distributive policies look at public entitlements, the more re-distributive policies aim at the reduction of inequalities (Navarro, 2007).

There is growing recognition within the health sector that implementation strategies are equally important, if not more, than the policy development process. Gunn and Hogwood (1984) identify several preconditions in which effective implementation occurs. Two standout

attributes of successful policies often were stronger. The first feature was institutional stability with involvement of key institutions right through the policy process with their respective roles clearly demarcated. The second feature was that strong financial stability through predictability of funding was critical for the success of policies.

Based on the study findings and behaviour interventions identified; the following policy recommendations were made. It is important to note that the proposed policy changes are in line with the recommendations of WHO (2018) in addressing the barriers in implementing evidence-based interventions to reduce medically unnecessary C-sections.

1) Greater investment is needed to sensitize women and communities on the risks of C-sections that are not medically indicated and the benefits of adhering to expert medical advice only. Efforts should be made to dispel myths and misconceptions around services provided in public sector facilities, to empower the communities to know their rights and to be confident in discussing options with physicians.
2) The gaps in the health system with respect to human resources, physical infrastructure, equipment, and supplies, ensuring physical safety of physicians, need to be addressed for physicians to be able to provide evidence-based care and to increase the trust of women and communities in the public health system of the country.
3) Policies should be made to provide both quality pre-service and in-service clinical and communication training to improve the skills of physicians and to develop greater confidence in their decision-making. Local opinion leaders such as the Obstetrics and Gynecologic Society of Bangladesh need to play a proactive role in the introduction of standardized guidelines for C-section decision-making. Audits and feedback should be routinely provided across facilities. Physicians who exhibit a high degree of compliance to standard practice and keep the institutional C-section rate at an optimum level should be encouraged as role models and well-rewarded.

References

Abenhaim, H.A., Azoulay, L., Kramer, M.S. and Leduc, L., 2008. Incidence and risk factors of amniotic fluid embolisms: A population-based study on 3 million births in the United States. *American Journal of Obstetrics and Gynecology,* 199(1), pp. 49.e41-49.e48.

ACOG, 2014. *Safe Prevention of the Primary Cesarean Delivery*

Ahasan, H.A.M.N., Das, A., 2014. Violence against doctors. *Journal of Medicine,* 15, pp. 106-108.

Al-Battawi, J.A.I., W.A., 2017. Applying health belief model to predict factors influencing women's decision regarding mode of delivery. *IOSR Journal of Nursing and Health Science (IOSR-JNHS),* 6(6 Ver. V), pp. 44-56.

Al-Mufti, R., McCarthy, A. and Fisk, N.M., 1997. Survey of obstetricians' personal preference and discretionary practice. *Eur J Obstet Gynecol Reprod Biol,* 73(1), pp. 1-4.

Allin, S., Baker, M., Isabelle, M. and Stabile, M., 2015. Physician incentives and the rise in C-sections: Evidence from Canada. *National Bureau of Economic Research Working Paper Series,* No. 21022.

Aminu, M., Utz, B., Halim, A. and van den Broek, N., 2014. Reasons for performing a caesarean section in public hospitals in rural Bangladesh. *BMC Pregnancy Childbirth,* 14, p. 130.

Arikan, D.C., Ozer, A., Arikan, I., Coskun, A. and Kiran, H., 2011. Turkish obstetricians' personal preference for mode of delivery and attitude toward cesarean delivery on maternal request. *Arch Gynecol Obstet,* 284(3), pp. 543-549.

Arrow, K.J., 1963. Uncertainty and the welfare economics of medical care. *American Economic Review,* 53, pp. 941-973.

Bales, R.F., 1950. *Interaction process analysis: A method for the study of small groups.* Chicago: University of Chicago Press.

Barr, P.J., O'Malley, A.J., Tsulukidze, M., Gionfriddo, M.R., Montori, V. and Elwyn, G., 2015. The psychometric properties of Observer OPTION(5), an observer measure of shared decision making. *Patient Educ Couns,* 98(8), pp. 970-976.

Barrett, J.F., Jarvis, G.J., Macdonald, H.N., Buchan, P.C., Tyrrell, S.N. and Lilford, R.J., 1990. Inconsistencies in clinical decisions in obstetrics. *Lancet,* 336(8714), pp. 549-551.

Batt, R.J., Christian Terwiesch, 2012. Doctors Under Load: An Emperical Study of State-Dependent Service Times *Working Paper*.

bdnews24 (2015). https://bdnews24.com/health/2015/04/26/dhs-points-to-abnormal-rise-of-c-section-in-bangladesh. [online] Available at: https://bdnews24.com/health/2015/04/26/dhs-points-to-abnormal-rise-of-c-section-in-bangladesh [Accessed 1 Dec. 2015].

Becker, G.S., 1965. A theory of the allocation of time. *The Economic Journal,* 75(299), pp. 493-517.

Begum, T., Rahman, A., Nababan, H., Hoque, D.M.E., Khan, A.F., Ali, T. and Anwar, I., 2017. Indications and determinants of caesarean section delivery: Evidence from a population-based study in Matlab, Bangladesh. *PLoS One,* 12(11), p. e0188074.

Belizan, J.M., Althabe, F. and Cafferata, M.L., 2007. Health consequences of the increasing caesarean section rates. *Epidemiology,* 18(4), pp. 485-486.

Berkowitz, G.S., Fiarman, G.S., Mojica, M.A., Bauman, J. and de Regt, R.H., 1989. Effect of physician characteristics on the cesarean birth rate. *Am J Obstet Gynecol,* 161(1), pp. 146-149.

Berliner, D., & Falen, D. J. (2008). Introduction to Special Section on Men Doing Anthropology of Women. Men and Masculinities, 11(2), 135–144.

Betran, A.P., Temmerman, M., Kingdon, C., Mohiddin, A., Opiyo, N., Torloni, M.R., Zhang, J., Musana, O., Wanyonyi, S.Z., Gulmezoglu, A.M. and Downe, S., 2018. Interventions to reduce unnecessary caesarean sections in healthy women and babies. *Lancet,* 392(10155), pp. 1358-1368.

Betran, A.P., Torloni, M.R., Zhang, J., Ye, J., Mikolajczyk, R., Deneux-Tharaux, C., Oladapo, O.T., Souza, J.P., Tuncalp, O., Vogel, J.P. and Gulmezoglu, A.M., 2015. What is the optimal rate of caesarean section at population level? A systematic review of ecologic studies. *Reprod Health,* 12, p. 57.

Bickerdyke, I.D., R. Monday I and Preston,R, 2002. *Supplier-Induced Demand for Medical Services.* Canberra.

Biswas, T.K., Begum, A.A., Akther, S., Rahman, M.H., Perry, H.B., Jones, H.E. and Chowdhury, M.E., 2018. A newly developed tool for measuring the availability of human resources for emergency obstetric and newborn care services: Prospective analytic study in two district-level public facilities in Bangladesh. *BMC Health Serv Res,* 18(1), p. 688.

Boerma, T., Ronsmans, C., Melesse, D.Y., Barros, A.J.D., Barros, F.C., Juan, L., Moller, A.B., Say, L., Hosseinpoor, A.R., Yi, M., de Lyra Rabello Neto, D. and Temmerman, M., 2018. Global epidemiology of use of and disparities in caesarean sections. *Lancet,* 392(10155), pp. 1341-1348.

Bogg, L., Huang, K., Long, Q., Shen, Y. and Hemminki, E., 2010. Dramatic increase of Cesarean deliveries in the midst of health reforms in rural China. *Soc Sci Med,* 70(10), pp. 1544-1549.

Bohren, M.A., Vogel, J.P., Hunter, E.C., Lutsiv, O., Makh, S.K., Souza, J.P., Aguiar, C., Saraiva Coneglian, F., Diniz, A.L., Tuncalp, O., Javadi, D., Oladapo, O.T., Khosla, R., Hindin, M.J. and Gulmezoglu, A.M., 2015. The mistreatment of women during childbirth in health facilities globally: A mixed-methods systematic review. *PLoS Med,* 12(6), p. e1001847; discussion e1001847.

Boyle, A. and Reddy, U.M., 2012. Epidemiology of cesarean delivery: the scope of the problem. *Semin Perinatol,* 36(5), pp. 308-314.

Britten, N., Stevenson, F.A., Barry, C.A., Barber, N. and Bradley, C.P., 2000. Misunderstandings in prescribing decisions in general practice: A qualitative study. *BMJ,* 320(7233), pp. 484-488.

Brown, J.B., Boles, M., Mullooly, J.P. and Levinson, W., 1999. Effect of clinician communication skills training on patient satisfaction: A randomized, controlled trial. *Ann Intern Med,* 131(11), pp. 822-829.

Bryant, J., Porter, M., Tracy, S.K. and Sullivan, E.A., 2007. Caesarean birth: Consumption, safety, order, and good mothering. *Soc Sci Med,* 65(6), pp. 1192-1201.

Burns, L.R., Geller, S.E. and Wholey, D.R., 1995. The effect of physician factors on the cesarean section decision. *Med Care,* 33(4), pp. 365-382.

Carter, S. M., and M. Little, 2007, Justifying knowledge, justifying method, taking action: Epistemologies, methodologies, and methods in qualitative research: *Qual Health Res,* v. 17, p. 1316-28.

Cegala, D.J., Coleman, M.T. and Turner, J.W., 1998. The development and partial assessment of the medical communication competence scale. *Health Commun,* 10(3), pp. 261-288.

Chandra, S., Mohammadnezhad, M. and Ward, P., 2018. *Trust and Communication in a Doctor-Patient Relationship: A Literature Review.*

Chen, I., Opiyo, N., Tavender, E., Mortazhejri, S., Rader, T., Petkovic, J., Yogasingam, S., Taljaard, M., Agarwal, S., Laopaiboon, M., Wasiak, J., Khunpradit, S., Lumbiganon, P., Gruen, R.L. and Betran, A.P., 2018. Non-clinical interventions for reducing unnecessary caesarean section. *Cochrane Database Syst Rev,* 9, p. CD005528.

Claramita, M., Dalen, J.V. and Van Der Vleuten, C.P.M., 2011. Doctors in a Southeast Asian country communicate sub-optimally regardless of patients' educational background. *Patient Education and Counseling,* 85(3), pp. e169-e174.

Claramita, M., Utarini, A., Soebono, H., Van Dalen, J. and Van der Vleuten, C., 2011. Doctor–patient communication in a Southeast Asian setting: The conflict between ideal and reality. *Advances in Health Sciences Education,* 16(1), pp. 69-80.

Collins, Patricia Hill (1991). *Black Feminist Thought: Knowledge, Consciousness and the Politics of Empowerment.* London: Routledge.

Costa, M.L., Cecatti, J.G., Souza, J.P., Milanez, H.M. and Gülmezoglu, M.A., 2010. Using a Caesarean Section Classification System based on characteristics of the population as a way of monitoring obstetric practice. *Reproductive health,* 7, pp. 13-13.

Couet, N., Desroches, S., Robitaille, H., Vaillancourt, H., Leblanc, A., Turcotte, S., Elwyn, G. and Legare, F., 2015. Assessments of the extent to which health-care providers involve patients in decision making: A systematic review of studies using the OPTION instrument. *Health Expect,* 18(4), pp. 542-561.

Council, B.M.a.D., 2010. The Bangladesh Medical and Dental Council Act 2010.

Creswell, J.W., Clark, P.V., 2011. *Designing and Conducting Mixed-Methods Research.* 2 ed. Los Angeles: SAGE Publications.

Creswell, J.W., Fetters, M.D. and Ivankova, N.V., 2004. Designing a mixed methods study in primary care. *Ann Fam Med,* 2(1), pp. 7-12.

Deneux-Tharaux, C., Carmona, E., Bouvier-Colle, M.H. and Breart, G., 2006. Postpartum maternal mortality and cesarean delivery. *Obstet Gynecol,* 108(3 Pt 1), pp. 541-548.

Diette, G.B. and Rand, C., 2007. The contributing role of health-care communication to health disparities for minority patients with asthma. *Chest,* 132(5 Suppl), pp. 802S-809S.

DiMatteo, M.R., 1998. The role of the physician in the emerging health care environment. *West J Med,* 168(5), pp. 328-333.

Divyamol, N., Raphael, L., Koshy, N., 2016. Caesarean section rate and its determinants in a rural area of South India. *International Journal of Community Medicine and Public Health,* 3(10), pp. 2836-2840.

Douche, J. and Carryer, J., 2011. Caesarean section in the absence of need: A pathologising paradox for public health? *Nurs Inq,* 18(2), pp. 143-153.

Dowell J, Huby G, Smith C (Eds) (1995) Scottish Consensus Statement on Oualitative Research in PrimM Health Care. Dundee: Tayside Centre for General Practice, University of Dundee

Dowling, M., 2006, Approaches to reflexivity in qualitative research. *Nurse Res,* v. 13, p. 7-21.

Dutta, D.C., 2004. *Text Book of Obstetrics Including Perinatology and Contraception.* 5 ed. Philadelphia, USA: New Central Book Agency.

Dweik, D. and Sluijs, A.M., 2015. What is underneath the cesarean request? *Acta Obstet Gynecol Scand,* 94(11), pp. 1153-1155.

El-Aziz, S.N., Mansour, S.E., & Hassan, N.F., 2016. Factors associated with fear of childbirth: It's effect on women's preference for elective cesarean section. *Journal of Nursing Education and Practice* 7(1), pp 133-145

Elwyn, G., Durand, M.A., Song, J., Aarts, J., Barr, P.J., Berger, Z., Cochran, N., Frosch, D., Galasinski, D., Gulbrandsen, P., Han, P.K.J., Harter, M., Kinnersley, P., Lloyd, A., Mishra, M., Perestelo-Perez, L., Scholl, I., Tomori, K., Trevena, L., Witteman, H.O. and Van der Weijden, T., 2017. A three-talk model for shared decision making: multistage consultation process. *BMJ,* 359, p. j4891.

Elwyn, G., Edwards, A., Wensing, M., Hood, K., Atwell, C. and Grol, R., 2003. Shared decision making: Developing the OPTION scale for measuring patient involvement. *Qual Saf Health Care,* 12(2), pp. 93-99.

Elwyn, G., Frosch, D., Thomson, R., Joseph-Williams, N., Lloyd, A., Kinnersley, P., Cording, E., Tomson, D., Dodd, C., Rollnick, S., Edwards, A. and Barry, M., 2012. Shared decision making: A model for clinical practice. *J Gen Intern Med,* 27(10), pp. 1361-1367.

Emily W. Kane, Laura J. Macaulay. 1993. Interviewer gender and gender attitudes. *Public Opinion Quarterly,* Volume 57, Issue 1, Spring 1993, Pages 1–28

Epstein, R.M., Franks, P., Fiscella, K., Shields, C.G., Meldrum, S.C., Kravitz, R.L. and Duberstein, P.R., 2005. Measuring patient-centered communication in patient-physician consultations: Theoretical and practical issues. *Soc Sci Med,* 61(7), pp. 1516-1528.

Feng, X.L., Xu, L., Guo, Y. and Ronsmans, C., 2012. Factors influencing rising caesarean section rates in China between 1988 and 2008. *Bull World Health Organ,* 90(1), pp. 30-39, 39A.

Finch, J. (1984). It's great to have someone to talk to: The ethics and politics of interviewing women. In C. Bell & H. Roberts (Eds.), Social researching: Politics, problems, practice (pp. 70-87). London: Routledge & Kegan Paul.

Fentiman, I.S., 2007. Communication with older breast cancer patients. *Breast J,* 13(4), pp. 406-409.

Flocke, S.A., Miller, W.L. and Crabtree, B.F., 2002. Relationships between physician practice style, patient satisfaction, and attributes of primary care. *J Fam Pract,* 51(10), pp. 835-840.

Folland S, G.A., Stano M, 2012. The economics of health and health care 7th ed. Boston: Pearson, pp. 305-308.

Fontana J (2004) A methodology for critical science in nursing. *Advances in Nursing Science*. 27, 2, 93-101.

Gambetta, D., 2000. Can We Trust Trust? *Trust: Making and Breaking Cooperative Relations.* Department of Sociology, University of Oxford, pp. 213-237.

Giddens, A., 1990. *The Consequences of Modernity.* Standford, USA: Standford University Press.

Gilbert, N., 2008, Researching Social Life: The Centre for Research in Social Simulation.

Gilson, L., 2006. Trust in health care: Theoretical perspectives and research needs. *J Health Organ Manag,* 20(5), pp. 359-375.

Glik, D.C., Parker, K., Muligande, G. and Hategikamana, B., 1986. Integrating qualitative and quantitative survey techniques. *Int Q Community Health Educ,* 7(3), pp. 181-200.

Goetzinger, K.R. and Macones, G.A., 2008. Operative vaginal delivery: Current trends in obstetrics. *Womens Health (Lond),* 4(3), pp. 281-290.

Goodman, H., 2001. In depth interviews. *The Handbook of social work research methods.* Thousand oaks, CA: SAGE Publications, pp. 308-319.

Goodyear-Smith, F. and Buetow, S., 2001. Power issues in the doctor-patient relationship. *Health Care Anal,* 9(4), pp. 449-462.

Goold, S.D. and Lipkin, M., 1999. The Doctor–Patient Relationship. *Journal of General Internal Medicine,* 14(S1), pp. 26-33.

Gopichandran, V. and Chetlapalli, S.K., 2015. Trust in the physician-patient relationship in developing healthcare settings: a quantitative exploration. *Indian J Med Ethics,* 12(3), pp. 141-148.

Greenhalgh, T. and Heath, I., 2010. Measuring quality in the therapeutic relationship--part 1: objective approaches. *Qual Saf Health Care,* 19(6), pp. 475-478.

Gronau, R., 1986. Chapter 4 Home production — A survey. *Handbook of Labor Economics.* Elsevier, pp. 273-304.

Gunn, L., Hogwood, B.W. , 1984. *Policy Analysis for the Real World.* Oxford University Press.

Ha, J.F. and Longnecker, N., 2010. Doctor-patient communication: a review. *Ochsner J,* 10(1), pp. 38-43.

Habermas, J., 1987. *The theory of communicative action.* Boston Press.

Haider, M.R., Rahman, M.M., Moinuddin, M., Rahman, A.E., Ahmed, S. and Khan, M.M., 2018. Ever-increasing Caesarean section and its economic burden in Bangladesh. *PLOS ONE,* 13(12), p. e0208623.

Hall, J.A., Roter, D.L. and Rand, C.S., 1981. Communication of affect between patient and physician. *J Health Soc Behav,* 22(1), pp. 18-30.

Hatt, L., Nguyen, H., Islam, M., Chowdhury, J., Sloan, N., Hossain, A., Schmidt, J.-O. and Nugent, L., 2010. *Evaluation of Bangladesh's Maternal Health Voucher Program.*

Hawley, S.T., Fagerlin, A., Janz, N.K. and Katz, S.J., 2008. Racial/ethnic disparities in knowledge about risks and benefits of breast cancer treatment: does it matter where you go? *Health services research,* 43(4), pp. 1366-1387.

Hellerstein, S., Feldman, S. and Duan, T., 2015. China's 50% caesarean delivery rate: is it too high? *BJOG,* 122(2), pp. 160-164.

Henbest, R.J. and Stewart, M.A., 1989. Patient-centredness in the consultation. 1: A method for measurement. *Fam Pract,* 6(4), pp. 249-253.

Herbert, R.D. and Higgs, J., 2004. Complementary research paradigms. *Aust J Physiother,* 50(2), pp. 63-64.

Herndon, J.H. and Pollick, K.J., 2002. Continuing concerns, new challenges, and next steps in physician-patient communication. *J Bone Joint Surg Am,* 84-A(2), pp. 309-315.

Hofmeyr, G.J., Barrett, J.F. and Crowther, C.A., 2011. Planned caesarean section for women with a twin pregnancy. *Cochrane Database Syst Rev,* (12), p. CD006553.

Hogberg, U., Lynoe, N. and Wulff, M., 2008. Cesarean by choice? Empirical study of public attitudes. *Acta Obstet Gynecol Scand,* 87(12), pp. 1301-1308.

Irving, G., Neves, A.L., Dambha-Miller, H., Oishi, A., Tagashira, H., Verho, A. and Holden, J., 2017. International variations in primary care physician consultation time: a systematic review of 67 countries. *BMJ Open,* 7(10), p. e017902.

Islam, A., Ahsan, G.U., Biswas, T, 2015. Health System Financing in Bangladesh: A Situation Analysis *School of Health Policy and Management*.

Islam, M., Jhora, S., 2014. Physician-Patient Relationship: The Present Situation and Our Responsibilities. *Bangladesh Medical Journal,* 41(1), pp. 55-58.

Islam, M.T. and Yoshimura, Y., 2015. Rate of cesarean delivery at hospitals providing emergency obstetric care in Bangladesh. *Int J Gynaecol Obstet,* 128(1), pp. 40-43.

Janowitz, B., Covington, D.L., Brown, M. and Nakamura, M., 1982. Interval sterilizations. A substitute for postpartum procedures, an example from Southeast Brazil. *Soc Sci Med,* 16(22), pp. 1979-1983.

Jena, A.B., Schoemaker, L., Bhattacharya, J. and Seabury, S.A., 2015. Physician spending and subsequent risk of malpractice claims: observational study. *BMJ,* 351, p. h5516.

Jewkes, R., Abrahams, N. and Mvo, Z., 1998. Why do nurses abuse patients? Reflections from South African obstetric services. *Soc Sci Med,* 47(11), pp. 1781-1795.

Jin, G., Zhao, Y., Chen, C., Wang, W., Du, J. and Lu, X., 2015. The length and content of general practice consultation in two urban districts of Beijing: a preliminary observation study. *PLoS One,* 10(8), p. e0135121.

Joffe, M., Chapple, J., Paterson, C. and Beard, R.W., 1994. What is the optimal caesarean section rate? An outcome based study of existing variation. *Journal of epidemiology and community health,* 48(4), pp. 406-411.

Jootun, D., G. McGhee, and G. R. Marland, 2009, Reflexivity: promoting rigour in qualitative research: *Nurs Stand*, v. 23, p. 42-6.

Jones M (1996) Men and feminist research. In: Pilcher J and Coffey A (eds) Gender and Qualitative Research. Brookfield, WI: Avebury, 131–148.

Joseph-Williams, N., Elwyn, G. and Edwards, A., 2014. Knowledge is not power for patients: a systematic review and thematic synthesis of patient-reported barriers and facilitators to shared decision making. *Patient Educ Couns,* 94(3), pp. 291-309.

Jou, J., Kozhimannil, K.B., Johnson, P.J. and Sakala, C., 2015. Patient-Perceived Pressure from Clinicians for Labor Induction and Cesarean Delivery: A Population-Based Survey of U.S. Women. *Health Serv Res,* 50(4), pp. 961-981.

Kabakian-Khasholian, T., Kaddour, A., Dejong, J., Shayboub, R. and Nassar, A., 2007. The policy environment encouraging C-section in Lebanon. *Health Policy,* 83(1), pp. 37-49.

Kabir, A.A., Steinmann, W.C., Myers, L., Khan, M.M., Herrera, E.A., Yu, S. and Jooma, N., 2004. Unnecessary cesarean delivery in Louisiana: an analysis of birth certificate data. *Am J Obstet Gynecol,* 190(1), pp. 10-19; discussion 13A.

Karim, S.M.T., Goni, M.R., Murad, M.H., 2013. Medical Negligence Laws and Patient Safety in Bangladesh: An analysis. *Journal of Alternative Perspectives in the Social Sciences* 5, pp. 424-442.

Keren-Paz, T., 2010. LIABILITY REGIMES, REPUTATION LOSS, AND DEFENSIVE MEDICINE. *Medical Law Review,* 18(3), pp. 363-388.

Khunpradit, S., Tavender, E., Lumbiganon, P., Laopaiboon, M., Wasiak, J. and Gruen, R.L., 2011. Non-clinical interventions for reducing unnecessary caesarean section. *Cochrane Database Syst Rev,* (6), p. Cd005528.

Kingdon, C., Downe, S. and Betran, A.P., 2018. Non-clinical interventions to reduce unnecessary caesarean section targeted at organisations, facilities and systems: Systematic review of qualitative studies. *PLoS One,* 13(9), p. e0203274.

Koch, T., & Harrington, A.R. (1998). Reconceptualizing rigour: the case for reflexivity. *Journal of advanced nursing, 28 4,* 882-90 .

Kolcaba, K., 2003. *Comfort theory and practice: a vision for holistic health care and research.* . New York, USA: Springer Publishing Company.

Koroukian, S.M., Trisel, B. and Rimm, A.A., 1998. Estimating the proportion of unnecessary Cesarean sections in Ohio using birth certificate data. *J Clin Epidemiol,* 51(12), pp. 1327-1334.

Kurtz, S.M., 2002. Doctor-patient communication: principles and practices. *Can J Neurol Sci,* 29 Suppl 2, pp. S23-29.

Lancet, 1997. *What is the right number of caesarean sections?*

Lauer, J.A. and Betran, A.P., 2007. Decision aids for women with a previous caesarean section. *BMJ,* 334(7607), pp. 1281-1282.

Lawton, B.A., Koch, A., Stanley, J. and Geller, S.E., 2013. The effect of midwifery care on rates of cesarean delivery. *Int J Gynaecol Obstet,* 123(3), pp. 213-216.

Le Grand, J., 2003. *Motivation, agency and public policy: of knights and knaves, pawns and queens.* Oxford University Press.

Lee, R.G. and Garvin, T., 2003. Moving from information transfer to information exchange in health and health care. *Soc Sci Med,* 56(3), pp. 449-464.

Lefevre, M., 2014. Physician induced demand for C-sections: does the convenience incentive matter? *Health Econometrics and Data Group - The University of York.*

Legare, F. and Thompson-Leduc, P., 2014. Twelve myths about shared decision making. *Patient Educ Couns,* 96(3), pp. 281-286.

Leone, T., Padmadas, S.S. and Matthews, Z., 2008. Community factors affecting rising caesarean section rates in developing countries: An analysis of six countries. *Social Science & Medicine,* 67(8), pp. 1236-1246.

Litorp, H., Kidanto, H.L., Nystrom, L., Darj, E. and Essen, B., 2013. Increasing caesarean section rates among low-risk groups: a panel study classifying deliveries according to Robson at a university hospital in Tanzania. *BMC Pregnancy Childbirth,* 13, p. 107.

Litorp, H., Mgaya, A., Mbekenga, C.K., Kidanto, H.L., Johnsdotter, S. and Essen, B., 2015. Fear, blame and transparency: Obstetric caregivers' rationales for high caesarean section rates in a low-resource setting. *Soc Sci Med,* 143, pp. 232-240.

Liu, S., Liston, R.M., Joseph, K.S., Heaman, M., Sauve, R., Kramer, M.S. and Maternal Health Study Group of the Canadian Perinatal Surveillance, S., 2007. Maternal mortality and severe morbidity associated with low-risk planned cesarean delivery versus planned vaginal delivery at term. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne,* 176(4), pp. 455-460.

Localio, A.R., Lawthers, A.G., Bengtson, J.M., Hebert, L.E., Weaver, S.L., Brennan, T.A. and Landis, J.R., 1993. Relationship between malpractice claims and cesarean delivery. *JAMA,* 269(3), pp. 366-373.

LoCicero, A.K., 1993. Explaining excessive rates of cesareans and other childbirth interventions: contributions from contemporary theories of gender and psychosocial development. *Soc Sci Med,* 37(10), pp. 1261-1269.

Loomes, G. and Sugden, R., 1982. Regret Theory: An Alternative Theory of Rational Choice Under Uncertainty. *The Economic Journal,* 92(368), pp. 805-824.

Long Q, KingdonC, Yang F, Renecle MD, Jahanfar S, BohrenMA, et al. (2018) Prevalence of and reasons for women's, family members',and health professionals' preferences for cesarean section in China: A mixed-methods systematic review. PLoS Med 15(10): e1002672.https://doi. org/10.1371/journal.pmed.1002672

M., G., 1984. *Who receives caesareans: patient and hospital characteristics.* Washington DC.

Ma, K.Z., Norton, E.C. and Lee, S.Y., 2010. Declining fertility and the use of cesarean delivery: evidence from a population-based study in Taiwan. *Health Serv Res,* 45(5 Pt 1), pp. 1360-1375.

Maestad, O., Torsvik, G. and Aakvik, A., 2010. Overworked? On the relationship between workload and health worker performance. *J Health Econ,* 29(5), pp. 686-698.

Makoul, G., Arntson, P. and Schofield, T., 1995. Health promotion in primary care: physician-patient communication and decision making about prescription medications. *Soc Sci Med,* 41(9), pp. 1241-1254.

Malterud, K., 2001, Qualitative research: standards, challenges, and guidelines: *Lancet*, v. 358, p. 483-8.

Martin, J.A., Hamilton, B.E. and Osterman, M.J., 2015. Births in the United States, 2014. *NCHS Data Brief,* (216), pp. 1-8.

Marya, P., Makene,C.L., Khamis,A.R., Currie,S., Tibaijuka,G.,Lacoste,M., and O'Bryan,M., 2012. *Quality of Maternal and Newborn Health Services in Zanzibar, 2010.* Baltimore, Maryland.

Mathews, T.J., Curtin, S.C. U.S.D.o.H.a.H. Services, 2015. *When Are Babies Born: Morning, Noon, or Night? Birth Certificate Data for 2013.* Centres for Disease Control and Prevention.

Maynard, M., 1994, Methods, Practice and Epistemology: The Debate about Feminism and Research, *in* M. Maynard, and J. Purvis, eds., Researching women's lives from a feminist perspective, v. Gender & society : feminist perspectives on the past and present: London, Taylor and Francis.

Mazzoni, A., Althabe, F., Liu, N.H., Bonotti, A.M., Gibbons, L., Sanchez, A.J. and Belizan, J.M., 2011. Women's preference for caesarean section: a systematic review and meta-analysis of observational studies. *BJOG,* 118(4), pp. 391-399.

McCourt, C., Weaver, J., Statham, H., Beake, S., Gamble, J. and Creedy, D.K., 2007. Elective cesarean section and decision making: a critical review of the literature. *Birth,* 34(1), pp. 65-79.

McCracken, G., 1998. *The Long interview, qualitative research methods.* Newbury Park, CA: Sage Publications.

McDowell, I. and MacLean, L., 1998. Blending qualitative and quantitative study methods in health services research. *Health Informatics Journal,* 4(1), pp. 15-22.

Mcguire, T.G., 2000. Physician Agency. In: A.J.C.a.J.P. Newhouse, ed. *Handbook of Health Economics.* pp. 461-536.

Mechanic, D., 1996. Changing medical organization and the erosion of trust. *Milbank Q,* 74(2), pp. 171-189.

Mechanic, D., 1998. Managed care, rationing, and trust in medical care. *J Urban Health,* 75(1), pp. 118-122.

Mechanic, D. and Schlesinger, M., 1996. The impact of managed care on patients' trust in medical care and their physicians. *Jama,* 275(21), pp. 1693-1697.

Menacker, F., Declercq, E. and Macdorman, M.F., 2006. Cesarean delivery: background, trends, and epidemiology. *Semin Perinatol,* 30(5), pp. 235-241.

Michie, S., van Stralen, M.M. and West, R., 2011. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci*, 6, p. 42.

Minkoff, H., 2012. Fear of litigation and cesarean section rates. *Semin Perinatol*, 36(5), pp. 390-394.

Mola, G., 2017. *Division of Obstetrics and Gynaecology, annual reports–2016.* Port Moresby, Papua New Guinea: N.D.o. Health.

Molina, G., Weiser, T.G., Lipsitz, S.R., Esquivel, M.M., Uribe-Leitz, T., Azad, T., Shah, N., Semrau, K., Berry, W.R., Gawande, A.A. and Haynes, A.B., 2015. Relationship Between Cesarean Delivery Rate and Maternal and Neonatal Mortality. *Jama*, 314(21), pp. 2263-2270.

Monari, F., Di Mario, S., Facchinetti, F. and Basevi, V., 2008. Obstetricians' and midwives' attitudes toward cesarean section. *Birth*, 35(2), pp. 129-135.

Morris. AM., A.G., Murphy. M, Thompson. P., Elston-Lafata L., & Birkemer. J., 2009. Race and patient perspectives on chemotherapy for colorectal cancer*Academy Health, 26th Annual Research Meeting*Chicago, IL.

Motherhood, T.W.R.A.f.S., 2012. *Respectful Maternity Care: the Universal Rights of Childbearing Women.* Washington, USA.

Mulley, A.G., 2009. Inconvenient truths about supplier induced demand and unwarranted variation in medical practice. *BMJ*, 339, p. b4073.

Mutryn, C.S., 1993. Psychosocial impact of cesarean section on the family: a literature review. *Soc Sci Med*, 37(10), pp. 1271-1281.

N., F., 2010. The Myth of the Unnecessary Cesarean. Available from: *https://academicobgyn.com/2010/07/27/the-myth-of-the-unnecessary-cesarean/*.

Navarro, V., 2007. What is a national health policy? *Int J Health Serv*, 37(1), pp. 1-14.

Neuman, M., Alcock, G., Azad, K., Kuddus, A., Osrin, D., More, N.S., Nair, N., Tripathy, P., Sikorski, C., Saville, N., Sen, A., Colbourn, T., Houweling, T.A., Seward, N., Manandhar, D.S., Shrestha, B.P., Costello, A. and Prost, A., 2014. Prevalence and determinants of caesarean section in private and public health facilities in underserved South Asian communities: cross-sectional analysis of data from Bangladesh, India and Nepal. *BMJ Open*, 4(12), p. e005982.

NICE, 2011. Caesarean section, Clinical Guideline.

NIPORT, 2004. *Bangladesh Demographic and Health Survey 2004.* Dhaka, Bangladesh and Calverton, Maryland [USA].

NIPORT, 2014. *Bangladesh Demographic and Health Survey 2014.* Dhaka, Bangladesh, and Rockville, Maryland, USA.

NIPORT, 2018. *Bangladesh Demographic and Health Survey 2017-18: Key Indicators.* Dhaka, Bangladesh and Rockville, Maryland, USA.

Nizami, S.Q., Khan, I.A. and Bhutta, Z.A., 1997. Paediatric prescribing in Karachi. *J Pak Med Assoc*, 47(1), pp. 29-32.

Oakley, A. (1981). Interviewing women: A contradiction in terms. In H. Robers (Ed.), Doing feminist research (pp. 30-61). London: Routledge & Kegan Paul

O'Cathain, A., Thomas, K., 2006. Qualitative research for social workers : phases, steps, & tasks. In: N.M. C Pope, ed. *Qualitative Research in Health Care* Oxford: Blackwell Publishing.

OECD, 2015. *Health at a Glance 2015: OECD Indicators.* Paris: OECD Publishing.

OGSB, 2018. *Standard Labour Room Management Protocol for all Health Facilities.* Bangladesh.

Owen, J.D., 1971. The Demand for Leisure. *Journal of Political Economy,* 79(1), pp. 56-76.

Panda, S., Begley, C. and Daly, D., 2018. Clinicians' views of factors influencing decision-making for caesarean section: A systematic review and metasynthesis of qualitative, quantitative and mixed methods studies. *PLoS One,* 13(7), p. e0200941.

Parkhurst, J.O. and Rahman, S.A., 2007. Non-professional health practitioners and referrals to facilities: lessons from maternal care in Bangladesh. *Health Policy Plan,* 22(3), pp. 149-155.

Parveen, S., 2011. *Improving the quality of nurse-midwives in Bangladesh: Addressing barriers of midwifery course in diploma in nursing and midwifery training.*

Patton, M.Q., 1990. *Qualitative evaluation and research methods.* 2nd ed.: SAGE Publications.

Paul, R.H. and Miller, D.A., 1995. Cesarean birth: how to reduce the rate. *Am J Obstet Gynecol,* 172(6), pp. 1903-1907; discussion 1907-1911.

Pearson, S.D. and Raeke, L.H., 2000. Patients' trust in physicians: many theories, few measures, and little data. *J Gen Intern Med,* 15(7), pp. 509-513.

Petrou, S., Henderson, J. and Glazener, C., 2001. Economic aspects of caesarean section and alternative modes of delivery. *Best Pract Res Clin Obstet Gynaecol,* 15(1), pp. 145-163.

Rasul, C.H., 2012. Violence towards Doctors. *Bangladesh Medical Journal* 43.

Reed, J., & Proctor, S. (Eds.). (1995). Practitioner research in health care. London: Chapman Hall.
RCOG, 2009. *Concent Advice No. 7.*

RCOG, 2015. *Clinical Governance Advice No. 6.*

Robson, M., Hartigan, L. and Murphy, M., 2013. Methods of achieving and maintaining an appropriate caesarean section rate. *Best Pract Res Clin Obstet Gynaecol,* 27(2), pp. 297-308.

Robson, M.H., L. Murphy M, 2001. Classification of caesarean sections. *Fetal and Maternal Medicine Review,* 12(1), pp. 23-39.

Robson. M., L.H., Martina Murphy, 2013. Methods of achieving and maintaining an appropriate caesarean section rate. *Best Practice & Research Clinical Obstetrics and Gynaecololgy,* 27, pp. 297-308.

Rostoker, J.-F., Begum, T., Ellis, C., Sarker, M., Anwar, I. and Rahman, A., 2018. *A qualitative study to explore the attitudes of women and obstetricians towards caesarean delivery in rural Bangladesh.*

Roter, D.L., 1983. Physician/patient communication: transmission of information and patient effects. *Md State Med J,* 32(4), pp. 260-265.

Roter, D.L., 1984. Patient question asking in physician-patient interaction. *Health Psychol,* 3(5), pp. 395-409.

Roter, D.L. and Hall, J.A., 1989. Studies of doctor-patient interaction. *Annu Rev Public Health,* 10, pp. 163-180.

Sakala, C., 1993. Medically unnecessary cesarean section births: introduction to a symposium. *Soc Sci Med,* 37(10), pp. 1177-1198.

Salmon, R. A., Priestley, R. K., & Goven, J. (2017). The reflexive scientist: an approach to transforming public engagement. *Journal of Environmental Studies and Sciences*, 7(1), 53–68.

Sanavi, F.S., Rakhshani, F., Ansari-Moghaddam, A. and Edalatian, M., 2012. Reasons for Elective Cesarean Section amongst Pregnant Women; A Qualitative Study. *J Reprod Infertil,* 13(4), pp. 237-240.

Sandall, J., Soltani, H., Gates, S., Shennan, A. and Devane, D., 2015. Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database Syst Rev,* (9), p. CD004667.

Sandall, J., Tribe, R.M., Avery, L., Mola, G., Visser, G.H., Homer, C.S., Gibbons, D., Kelly, N.M., Kennedy, H.P., Kidanto, H., Taylor, P. and Temmerman, M., 2018. Short-term and long-term effects of caesarean section on the health of women and children. *Lancet,* 392(10155), pp. 1349-1357.

Sandelowski, M., 2000. Combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Res Nurs Health,* 23(3), pp. 246-255.

Scambler, G., Britten. N., 2001. System, lifeworld and doctor-patient interaction. In: G. Scambler, ed. *Habermas, critical theory and health.* Taylor & Francis e-Library.

Scott, A., 2000. Economics of General Practice. In: A.J.C.a.J.P. Newhouse, ed. *Handbook of Health Economics.* pp. 1176-1199.

Shearer, E.L., 1993. Cesarean section: medical benefits and costs. *Soc Sci Med,* 37(10), pp. 1223-1231.

Silverman, J., Kurtz,S.M., Draper,J., 1998. *Skills for Communicating with Patients.* Radcliffe Medical Press.

Sitzia, J. and Wood, N., 1997. Patient satisfaction: a review of issues and concepts. *Soc Sci Med,* 45(12), pp. 1829-1843.

Smith, W., 2018. Concept Analysis of Family-Centered Care of Hospitalized Pediatric Patients. *J Pediatr Nurs,* 42, pp. 57-64.

Souza, J.P., Gulmezoglu, A., Lumbiganon, P., Laopaiboon, M., Carroli, G., Fawole, B., Ruyan, P., Maternal, W.H.O.G.S.o. and Perinatal Health Research, G., 2010. Caesarean section without medical indications is associated with an increased risk of adverse short-term maternal outcomes: the 2004-2008 WHO Global Survey on Maternal and Perinatal Health. *BMC Med,* 8, p. 71.

Spradley, J.P., 1979. *The Ethnographic Interview.* New York: Holt, Rinehart and Winston.

Stafford, R.S., 1990. Alternative strategies for controlling rising cesarean section rates. *JAMA,* 263(5), pp. 683-687.

Stavropoulou, C., 2012. The doctor-patient relationship: A review of the theory and policy implications. . *The LSE Companion to Health Policy*, pp. 314-326.

Street, R.L., 1992. Communicative styles and adaptations in physician-parent consultations. *Soc Sci Med,* 34(10), pp. 1155-1163.

Street, R.L., Jr., Gordon, H.S., Ward, M.M., Krupat, E. and Kravitz, R.L., 2005. Patient participation in medical consultations: why some patients are more involved than others. *Med Care,* 43(10), pp. 960-969.

Stubenrouch, F.E., Pieterse, A.H., Falkenberg, R., Santema, T.K., Stiggelbout, A.M., van der Weijden, T., Aarts, J.A. and Ubbink, D.T., 2016. OPTION(5) versus OPTION(12) instruments to appreciate the extent to which healthcare providers involve patients in decision-making. *Patient Educ Couns,* 99(6), pp. 1062-1068.

Takeda, A. (2012). Critical Reflections: Interpretation and Analysis of Japanese Women's Settlement Experiences. *The Qualitative Report*, 17(10), 1-15.

Tasnim, S., 2010. Perception about Pain Relief During Normal Labour Among Health Care Providers Conducting Delivery. *Medicine Today,* 22(1), pp. 20-23.

Teddlie, C., Tashakkori, A., 2009. *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative approaches in the Social and Behavioral Sciences* SAGE Publications, Inc.

Thiede, M., 2005. Information and access to health care: is there a role for trust? *Soc Sci Med,* 61(7), pp. 1452-1462.

Tongue, J.R., Epps, H.R. and Forese, L.L., 2005. Communication skills. *Instr Course Lect,* 54, pp. 3-9.

Torloni, M.R., Betran, A.P., Souza, J.P., Widmer, M., Allen, T., Gulmezoglu, M. and Merialdi, M., 2011. Classifications for cesarean section: a systematic review. *PLoS One,* 6(1), p. e14566.

Travaline, J.M., Ruchinskas, R. and D'Alonzo, G.E., Jr., 2005. Patient-physician communication: why and how. *J Am Osteopath Assoc,* 105(1), pp. 13-18.

Tussing. AD., W.M., 1986. The cesarean decision in New York State, 1986: economic and non-economic aspects. . *Med Care 1992*.

Tutty, L.M., Grinnell, R.M., 1995. *Qualitative research for social workers : phases, steps, & tasks.* Allyn & Bacon.

Unger, J.P., Ghilbert, P. and Fisher, J.P., 2003. Doctor-patient communication in developing countries. *BMJ,* 327(7412), p. 450.

Unger, J.P., Van Dormael, M., Criel, B., Van der Vennet, J. and De Munck, P., 2002. A plea for an initiative to strengthen family medicine in public health care services of developing countries. *Int J Health Serv,* 32(4), pp. 799-815.

UNICEF, 2016. *Every Mother Every Newborn (EMEN) - Quality Improvement Guide for Health Facility Staff.*

USAID, *Maternal and child health integrated program (MCHIP). Maternal and Newborn Quality of Care Surveys* [Online]. [Accessed May 3].

Verlinde, E., Laender, N., Maesschalck, S., Deveugele, M., Willems, S. , 2012. The social gradient in doctor-patient communication. *International Journal of Equity in Health,* 11.

Villar, J., Valladares, E., Wojdyla, D., Zavaleta, N., Carroli, G., Velazco, A., Shah, A., Campodonico, L., Bataglia, V., Faundes, A., Langer, A., Narvaez, A., Donner, A., Romero, M., Reynoso, S., de Padua, K.S., Giordano, D., Kublickas, M., Acosta, A., maternal, W.H.O.g.s.o. and perinatal health research, g., 2006. Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. *Lancet,* 367(9525), pp. 1819-1829.

Visser, G.H.A., Ayres-de-Campos, D., Barnea, E.R., de Bernis, L., Di Renzo, G.C., Vidarte, M.F.E., Lloyd, I., Nassar, A.H., Nicholson, W., Shah, P.K., Stones, W., Sun, L., Theron, G.B. and Walani, S., 2018. FIGO position paper: how to stop the caesarean section epidemic. *Lancet,* 392(10155), pp. 1286-1287.

Walker, R., Turnbull, D. and Wilkinson, C., 2002. Strategies to address global cesarean section rates: a review of the evidence. *Birth,* 29(1), pp. 28-39.

Warnecke, E., 2014. The art of communication. *Aust Fam Physician,* 43(3), pp. 156-158.

Warren, M.E., 1999. Democratic Theory and Trust. In: M.E. Warren, ed. *Democracy and Trust.* Cambridge: Cambridge University Press.

Wennberg, J.E., Barnes, B.A. and Zubkoff, M., 1982. Professional uncertainty and the problem of supplier-induced demand. *Soc Sci Med,* 16(7), pp. 811-824.

WHO, 1985. Appropriate technology for birth. . *Lancet,* 2, pp. 436-437.

WHO, 2007. *Everybody's Business - Strenthening Health Systems to Improve Health Outcomes*

WHO, 2010. *The Global Numbers and Costs of Additionally Needed and Unnecessary Caesarean Sections Performed per Year: Overuse as a Barrier to Universal Coverage.*

WHO, 2015. *WHO Statement on caesarean section rates.* (1460-9576 (Electronic)

0968-8080 (Linking)). Available from: *https://www.ncbi.nlm.nih.gov/pubmed/26278843*.

WHO, 2016. *Standards for Improving Quality of Maternal and Newborn Care in Health Facilities*

WHO, 2017. *Robson Classification: Implementation Manual.*

WHO, 2018. *WHO recommendations: Intrapartum care for a positive childbirth experience* Geneva.

Willems, S., De Maesschalck, S., Deveugele, M., Derese, A. and De Maeseneer, J., 2005. Socio-economic status of the patient and doctor-patient communication: does it make a difference? *Patient Educ Couns,* 56(2), pp. 139-146.

Ye, J., Betran, A.P., Guerrero Vela, M., Souza, J.P. and Zhang, J., 2014. Searching for the optimal rate of medically necessary cesarean delivery. *Birth,* 41(3), pp. 237-244.

Ye, J., Zhang, J., Mikolajczyk, R., Torloni, M.R., Gülmezoglu, A.M. and Betran, A.P., 2016. Association between rates of caesarean section and maternal and neonatal mortality in the 21st century: a worldwide population-based ecological study with longitudinal data. *BJOG : an international journal of obstetrics and gynaecology*, 123(5), pp. 745-753.

Young, D., 1997. A new push to reduce cesareans in the United States. *Birth*, 24(1), pp. 1-3.

Zbiri, S., Rozenberg, P., Goffinet, F. and Milcent, C., 2018. Cesarean delivery rate and staffing levels of the maternity unit. *PLoS One,* 13(11), p. e0207379.

Zhu, L., Li, L. and Lang, J., 2018. The attitudes towards defensive medicine among physicians of obstetrics and gynaecology in China: a questionnaire survey in a national congress. *BMJ Open*, 8(2), p. e019752.

Zweifel, P., Breyer,F., Kifmaan,M., 2009. *Health Economics.* Berlin: Springer.

Appendices

Appendix 1: The link between the PD research study and the larger research study in Bangladesh

This PD research study nested within a larger study looking at multiple factors influencing decision-making in C-sections in Bangladesh. The larger study is being conducted on behalf of the Government of Bangladesh and is deemed to be action research through a nexus of researchers and practitioners to understand the reasons behind the rising C-section rates in Bangladesh and to take action to address it.

The design of the larger action research study has been finalised by the Ministry of Health and Family Welfare, Bangladesh, in consultation with select agencies in the country which provide technical assistance to it. The United Nations Population Fund, Bangladesh (UNFPA), is funding the study at the request of the Government of Bangladesh. The PD student works at UNFPA and is part of the advisory team in the design of the larger study. Through a desk review process on research capabilities, the Maternal and Child Health division of the International Centre for Diarrheal Diseases Research, Bangladesh, was given the responsibility of carrying out the overall action research on behalf of the government.

The larger study is not backed by detailed literature review but is based on local contextual factors as determined by perceptions and experience of multiple stakeholders in the country. The larger study casts a wider net in identifying modifiable factors in helping reduce C-section rate in Bangladesh. The PD study shares part of the study settings as the larger study. The PD restricts itself to 8 of the 16 district hospitals of the larger study and does not delve into the sub-district hospital level. The data collected for the PD study also forms part of the pool of data for the larger study. The larger study includes additional participants both in the form of numbers and type (e.g. The larger study covers 592 observations while the PD study covers 296 only; the larger study interviews midwives, nurses and facility managers in addition to the physicians while the PD study involves the physicians only).

A comparison table between the larger study and the PD research study are given below:

	Larger study	PD research study
Study setting	16 district hospitals 48 sub-district hospitals	8 out of the 16 district hospitals to be covered in the larger study None
Quantitative methods – sample size		
Method	Larger study	PD research study
Observation	592	296 (completed 306) out of the 592
Physician interview	160	

Women who delivered	592	
Qualitative methods – sample size		
Physician interview	64	16 out of the 64 physicians in total as part of the larger study
Women who underwent Emergency C-section	32	16 out of the 32 women to be interviewed in total as part of the larger study
Women who underwent Elective C-section	32	16 out of the 32 women to be interviewed in total as part of the larger study
Facility Managers	64	
Midwives and Nurse Midwives	16	

The larger quantitative study involved 17 field researchers, and the qualitative study team had six field researchers. 9 out of the 17 quantitative field researchers and all six qualitative field researchers supported data collection for the PD research study component of the larger study. The same researchers would also continue collecting data for the larger study. The eight district hospitals which were part of the PD research study were covered first, and all components of the larger study were completed for each of the 8 facilities in one visit. The larger study continues into the other eight district hospitals and 48 sub-district hospitals and is likely to be completed by mid-2019.

The lead researcher of the PD research study was selectively involved in leading all aspects of that component of the study only. The research team of ICDDR, B managed all other components of the larger study. The PD research study has been designed based on the research paradigm of the lead researcher backed by rigorous literature review while the larger study is a consensus design of many stakeholders with interest in the area. The Professional Doctorate in Health Program training calls for keeping the research area focused, based on a hypothesis generated from a thorough review of the literature and where the outcome of the research will contribute adding to the existing body of literature.

The specific role of the PD researcher in this study is as below:

1) Conception of the idea of the study
2) Development of the protocol
3) Submission to ethical committees (local and University) and obtaining clearance
4) Sampling and seeking necessary permissions
5) Development of the data collection tools
6) Recruitment of data collectors and their training
7) Monitoring and supervision of data collection in the field
8) Data analysis

9) Report writing
10) Dissemination

Data collection for the study was done by experienced researchers (qualifications discussed in the methods section) in paper format and data entry was done at the data entry unit of ICDDR'B. Data analysis (quantitative and qualitative components) of the study component was done by the PD researcher.

While broader physician, patient and health system factors in the context of C-section decision-making have been researched widely in the world, some published literature is also available in the context of Bangladesh. There is however very limited literature in the area of shared decision-making in C-sections and the influence of the communicative competence of the physician and patients in it globally and in Bangladesh. The research design proposed for the PD component of the study is expected to generate maximum new knowledge in the area adding not only to the global literature but also beneficial to Bangladesh to develop focussed interventions to address related goals.

Appendix 2: Consent form and participant information sheets

CONSENT FORM

"Factors influencing decision-making for C-section in public sector hospitals of Bangladesh"

Researcher: Sathyanarayanan Doraiswamy, University of Bath, Tel: +[redacted] and Email: [redacted]

Supervisor: Alan Buckingham, University of Bath, Tel: +441225385433 and E-mail: A.Buckingham@bath.ac.uk

Please initial box if you agree with the statement

1) I have been provided with information explaining what participation in this project involves. ☐
2) I have had an opportunity to ask questions and discuss this project. ☐
3) I have received satisfactory answers to all questions I have asked. ☐
4) I have received enough information about the project to make a decision about my participation. ☐
5) I understand that I am free to withdraw my consent to participate in the project at any time without having to give a reason for withdrawing. ☐
6) I understand that I am free to withdraw my data within two weeks of my participation. ☐
7) I understand the nature and purpose of the procedures involved in this project. These have been communicated to me on the information sheet accompanying this form. ☐
8) I understand and acknowledge that the investigation is designed to promote scientific knowledge and that the University of Bath will use the data I provide only for the purpose(s) set out in the information sheet. ☐
9) I understand the data I provide will be treated as confidential, and that on completion of the project my name or other identifying information will not be disclosed in any presentation or publication of the research. ☐
10) I understand that my consent to use the data I provide is conditional upon the University complying with its duties and obligations under the Data Protection Act. ☐
11) I hereby fully and freely consent to my participation in this project. ☐

Participant's signature: _____ Date: _____

Participant name in BLOCK Letters: _____

Researcher's signature: _____ Date: _____

Researcher name in BLOCK Letters: _____

If you have any concerns or complaints related to your participation in this project please direct them to the Chair of the Research Ethics Approval Committee for Health, Dr James Betts (j.betts@bath.ac.uk, +441225383448)

PARTICIPANT INFORMATION SHEET

Physicians for observation during labour

Thank you for taking the time to read this information sheet!

You are being invited to take part in a research study. Before you decide whether you will participate, it is important to understand why the research is being done and what it will involve.

- Please read the following information carefully
- Please feel free to ask for more information
- Do not hesitate to take time to discuss it with others

What is the purpose of the study?

The purpose of this research is to study factors that influence the process of informed consent for primary C-sections in public sector hospitals of Bangladesh

Why have I been chosen?

You have been identified as someone who is interested in this research study and fits the inclusion criteria.

Do I have to participate?

It is up to you whether or not you choose to participate in this study. If you do decide to take part, you will be given this information sheet to keep and asked to sign a consent form.

What will happen to me if I agree to participate?

If you choose to participate in this research study, researchers will observe compliance with standard operating procedures for intra-partum care.

How long will the study last?

The study will last for 3 weeks in this facility. The observation during labour will last until a final decision on the mode of delivery is made.

What if I change my mind during the study?

You are free to withdraw from the study at any time. You will not have to give any reasons for your withdrawal. You will also have the right to refuse the data to be used. You will have the option to exercise this right up to 2 weeks from the point of data collection.

What are the risks of participating in this study?

We do not feel there are risks to taking part. The researchers however will follow the law in Bangladesh and will report any malpractice or unethical behaviour to concerned authorities.

What are the possible benefits of taking part?

There are no obvious direct benefits to you for taking part in the project. Your involvement in this research study will provide you with the opportunity to make policy makers understand the motivation behind C-section decision-making in Bangladesh. The learning from this study will be used to help rationalize C-section decision-making in Bangladesh by improving communication capacity of doctors and empowerment of women and girls like you to better participate in the C-section decision-making process.

Will my participation be kept confidential?

All information collected about you during the course of this study will be kept strictly confidential. You will be identified by a code rather than a name and the information will be stored in password-protected tablets and computer files, which can only be accessed by the research team. Your name will not be disclosed. Some of your comments may be used word for word when the research team is compiling the data analysis, but you will not be identified. However as the law in Bangladesh stipulates, the researchers will notify director general of Health Services and the Bangladesh Medical Council in case they observe any criminal negligence/ unethical behaviour as defined in the medical jurisprudence and code of ethics for doctors in Bangladesh.

Who is organizing and funding this research?

The research is being carried out to fulfil the research part of a doctoral degree at the University of Bath, UK. United Nations Population Fund, the primary researcher's employer, is funding the research study and International Centre for Diarrheal Research, Bangladesh is supporting the primary researcher with necessary human resource and logistics in carrying out the research study.

Who has reviewed the study?

The protocol for this study has been reviewed and approved by the Research Ethics Approval Committee at the University of Bath and by the Internal Review Board at International Centre for Diarrheal Research, Bangladesh.

What will happen to the study results?

We aim to publish the results of the study in health journals and present our findings at professional conferences. The data may also be used for teaching at university, for teaching medical students and by the Ministry of Health for policy making.

What do I do if I want to make a complaint?

If you would like to make a complaint about the study, please contact the primary researcher at [redacted] Email: [redacted] or the local supervisor at 0[redacted]; Email: [redacted] International supervisor at University of Bath can be reached at E-mail: A.Buckingham@bath.ac.uk and telephone: +441225385433. The bodies that have given ethical approval for the study are as below:

University of Bath
Chair of the Research Ethics Approval Committee for Health,
Dr James Betts (j.betts@bath.ac.uk, +441225 383448)

ICDDR, B
[redacted]

How do I find out more?
If you would like more information, please contact Sathya Doraiswamy (primary researcher):
United Nations Population Fund
IDB Bhaban, 15th floor, Agargoan, Dhaka 1207.
Tel: 0[redacted]
Email: d[redacted]

PARTICIPANT INFORMATION SHEET

Physician interview

Thank you for taking the time to read this information sheet!

You are being invited to take part in a research study. Before you decide whether you will participate, it is important to understand why the research is being done and what it will involve.

- Please read the following information carefully
- Please feel free to ask for more information
- Do not hesitate to take time to discuss it with others

What is the purpose of the study?

The purpose of this research is to study factors that influence the process of informed consent for primary C-sections in public sector hospitals of Bangladesh

Why have I been chosen?

You have been identified as someone who is interested in this research study and fits the inclusion criteria.

Do I have to participate?

It is up to you whether or not you choose to participate in this study. If you do decide to take part, you will be given this information sheet to keep and asked to sign a consent form.

What will happen to me if I agree to participate?

In a quiet setting and according to your preference, you will be interviewed by one researcher trained in conducting this interview. The interview will be semi-structured and will build on the conversation. The researcher will use a guidebook to ask questions on this topic and will initiate the discussion. The discussion will be tape recorded and transcribed later. Once transcription is done, the file would be duly deleted.

How long will the study last?

The study will last for 3 weeks in this facility. The observation during labour will last until a final decision on the mode of delivery is made. The interviews on the other hand are expected to last about 30 minutes.

What if I change my mind during the study?

You are free to withdraw from the study at any time. You will not have to give any reasons for your withdrawal. You will also have the right to refuse the data to be used. You will have the option to exercise this right up to 2 weeks from the point of data collection.

What are the risks of participating in this study?

We do not feel there are risks to taking part. The researchers however will follow the law in Bangladesh and will report any malpractice or unethical behaviour to concerned authorities.

What are the possible benefits of taking part?

There are no obvious direct benefits to you for taking part in the project. Your involvement in this research study will provide you with the opportunity to make policy makers understand the motivation behind C-section decision-making in Bangladesh. The learning from this study will be used to help rationalize C-section decision-making in Bangladesh by improving communication capacity of doctors and empowerment of women and girls like you to better participate in C-section decision-making process.

Will my participation be kept confidential?

All information collected about you during the course of this study will be kept strictly confidential. You will be identified by a code rather than a name and the information will be stored in password-protected tablets and computer files, which can only be accessed by the research team. Your name will not be disclosed. Some of your comments may be used word for word when the research team is compiling the data analysis, but you will not be identified. However, as the law in Bangladesh stipulates, the researchers will notify the director general of Health Services and the Bangladesh Medical Council in case they observe any criminal negligence/ unethical behaviour as defined in the medical jurisprudence and code of ethics for doctors in Bangladesh.

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What will happen to the study results?

We aim to publish the results of the study in health journals and present our findings at professional conferences. The data may also be used for teaching at university, for teaching medical students and by the Ministry of Health for policy making.

What do I do if I want to make a complaint?

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How do I find out more?
If you would like more information, please contact Sathya Doraiswamy (primary researcher):
United Nations Population Fund, IDB Bhaban, 15th floor, Agargoan, Dhaka 1207.
Tel: [redacted]
Email: [redacted]

PARTICIPANT INFORMATION SHEET

Patients for observation during labour

Thank you for taking the time to read this information sheet!

You are being invited to take part in a research study. Before you decide whether you will participate, it is important to understand why the research is being done and what it will involve.

- Please read the following information carefully
- Please feel free to ask for more information
- Do not hesitate to take time to discuss it with others

What is the purpose of the study?

The purpose of this research is to study factors that influence the process of informed consent for primary C-sections in public sector hospitals of Bangladesh

Why have I been chosen?

You have been identified as someone who is interested in this research study and fits the inclusion criteria. The inclusion criteria are:

- Above 18 years of age
- All labour situations during the study period of 3 weeks in that facility – observing women in labour and their interaction with doctors.

Do I have to participate?

It is up to you whether or not you choose to participate in this study. If you do decide to take part, you will be given this information sheet to keep and asked to sign a consent form.

What will happen to me if I agree to participate?

If you choose to participate in this research study, researchers will observe compliance with standard operating procedures for intra-partum care. The researchers themselves are doctors and have been specially trained to carry out this research. They are not only well versed in the tools to be used in the study but also to be sensitive to developments in the labour room. They have been trained intensively by psychologists for 7 days to observe any signs of distress in you and will withdraw immediately from the scene, should they notice the slightest of signs. You can also ask them to leave the labour room at any point of time. If you would like any support to overcome any distress, the researchers are bound to find such a support to your satisfaction, and you are free to call upon their service anytime.

How long will the study last?

The observations will last until a decision on the mode of delivery has been made. The study will run for 3 weeks in this facility.

What if I change my mind during the study?

You are free to withdraw from the study at any time. You will not have to give any reasons for your withdrawal. You will also have the right to refuse the data to be used. You will have the option to exercise this right up to 2 weeks from the point of data collection.

What are the risks of participating in this study?

We do not feel there are risks to taking part. The researchers however will follow the law in Bangladesh and will report any malpractice or unethical behaviour to concerned authorities.

What are the possible benefits of taking part?

There are no obvious direct benefits to you for taking part in the project. Your involvement in this research study will provide you with the opportunity to make policy makers understand the motivation behind C-section decision-making in Bangladesh. The learning from this study will be used to help rationalize C-section decision-making in Bangladesh by improving communication capacity of doctors and empowerment of women and girls like you to better participate in C-section decision-making process.

Will my participation be kept confidential?

All information collected about you during the course of this study will be kept strictly confidential. You will be identified by a code rather than a name and the information will be stored in password-protected tablets and computer files, which can only be accessed by the research team. Your name will not be disclosed.

Who is organizing and funding this research?

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United Nations Population Fund, IDB Bhaban, 15th floor, Agargoan, Dhaka 1207, Tel: 0[redacted] Email: [redacted]

PARTICIPANT INFORMATION SHEET

Patient interview

Thank you for taking the time to read this information sheet!

You are being invited to take part in a research study. Before you decide whether you will participate, it is important to understand why the research is being done and what it will involve.

- Please read the following information carefully
- Please feel free to ask for more information
- Do not hesitate to take time to discuss it with others

What is the purpose of the study?
The purpose of this research is to study factors that influence the process of informed consent for primary C-sections in public sector hospitals of Bangladesh

Why have I been chosen?
You have been identified as someone who is interested in this research study and fits the inclusion criteria. The inclusion criteria are:

- Above 18 years of age
- All women who have undergone C-section in the chosen facility during the study period.
- No negative outcome in pregnancy

Do I have to participate?
It is up to you whether or not you choose to participate in this study. If you do decide to take part, you will be given this information sheet to keep and asked to sign a consent form.

What will happen to me if I agree to participate?

In a quiet setting and according to your preference, you will be interviewed by one researcher trained in conducting this interview. The interview will be semi-structured and will build on the conversation and will last about 30 minutes. The researcher will use a guidebook to ask questions on how the decision to have a C-section was arrived at and will initiate the discussion. The discussion will be tape recorded and transcribed later. Once transcription is done, the file would be duly deleted.

The researchers have been specially trained to carry out this research. They are not only well versed in the tools to be used in the study but also to be sensitive to developments during the course of the interview. They have been trained intensively by psychologists for 7 days to observe any signs of distress in you and will halt the interview, should they notice the slightest of signs. You can also ask for the interview to be stopped at any point of time. If you would like any support to overcome any distress, the researchers are bound to find such a support to your satisfaction, and you are free to call upon their service anytime. The researcher will notify the ward nurse and the treating doctor to provide additional support if required to help you overcome the distress.

How long will the study last?

The study will last for 3 weeks in this facility. The observation during labour will last until a final decision on the mode of delivery is made. The interviews on the other hand are expected to last about 30 minutes.

What if I change my mind during the study?

You are free to withdraw from the study at any time. You will not have to give any reasons for your withdrawal. You will also have the right to refuge the data to be used. You will have the option to exercise this right up to two weeks from the point of data collection.

What are the risks of participating in this study?

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What are the possible benefits of taking part?

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Will my participation be kept confidential?

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Who has reviewed the study?

The protocol for this study has been reviewed and approved by the Research Ethics Approval Committee at the University of Bath and by the Internal Review Board at International Centre for Diarrheal Research, Bangladesh.

What will happen to the study results?

We aim to publish the results of the study in health journals and present our findings at professional conferences. The data may also be used for teaching at university, for teaching medical students and by the Ministry of Health for policy making.

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If you would like to make a complaint about the study, please contact the primary researcher at [redacted] Email: [redacted] or the local supervisor at 0[redacted] Email: [redacted]. International supervisor at University of Bath can be reached at E-mail: A.Buckingham@bath.ac.uk and telephone: +441225385433. The bodies that have given ethical approval for the study are as below:

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How do I find out more?
If you would like more information, please contact Sathya Doraiswamy (primary researcher):
United Nations Population Fund; IDB Bhaban, 15th floor, Agargoan, Dhaka 1207; Tel: 0[redacted]; Email: [redacted]

Appendix 3: Quantitative tool (MCHIP; Robson and OPTION 5)

TOOL 1: OBSERVATION CHECKLIST FOR DELIVERY CARE

Instruction for the data collectors:

- The data will be collected principally by observation
- If the data collectors face difficulty in collecting information regarding any specific indicator, they will talk to facility managers and/or review documents or talk to the facility manager or any person nominated by him
- The data collectors should pay specific attention to the **SKIP** questions
- If time of event is unknown, record 99:99.
- If any numerical record is unknown record "99" as appropriate in the box.
-

Information about Observer			
Name of the observer: _____		Code: ☐☐☐☐	
Date of starting observation:		☐☐-☐☐-☐☐☐☐ D D M M Y Y Y Y	
Time of **starting** observation: (24 hours)	☐☐:☐☐ **h h m m**	Time of **ending** observation:	☐☐:☐☐ **h h m m**
Date of ending observation:		☐☐-☐☐-☐☐☐☐ D D M M Y Y Y Y	

Information about health facility:		
Name and code of health facility	_____	☐☐☐☐☐
Address of the facility**:**		
District _____ ☐☐	Upazila _____ ☐☐	
Type of the facility	District hospital	1
	Upazila Health Complex	2
Facility has special arrangement for disabled at reception/ emergency	Yes	1
	No	2
Facility has ambulance access to reception/ emergency	Yes	1
	No	2

Information about the client or pregnant woman during delivery				
After reading the consent form to the client, if she gives the permission, please start observation. *If client is incapacitated, family friend/relative/neighbour accompanying client may give consent. (Consent for client cannot be given by health worker or facility in charge. Consent from client herself or her family friend/relative/neighbour must be obtained prior the observation)* **This section must to be filled**				
02	Client registration number		☐☐☐☐☐☐☐☐	
03	Age range *(in years) - circle*		<=19 20-24 25-29 30-34 >35	
04	Gestational age *(in weeks)*		☐☐	
05	LMP		☐☐-☐☐-☐☐☐ **D D M M Y Y Y Y**	
06	EDD		☐☐-☐☐-☐☐☐☐ **D D M M Y Y Y Y**	
07	Parity		☐☐	
08	Gravida		☐☐	
09	Time of arrival of client *(Record in 24 hours)*		☐☐:☐☐ **h h m m**	
10	Client coming from		Home/ Someplace else	1
			Other heath facility	2
			ANC ward at this facility	3
			Others	4
11	Time of first professional health care provider (Doctor/ Nurse) contact *(Record in 24 hours)*		☐☐:☐☐ **h h m m**	
11A	Who did receive the client first?	Specialist (*consultant of obs. & gynaecology*)		1
		Medical officer		2
		Nurse		3
		Paramedic/ SACMO		4
		Midwife		5

		Untrained nurse (*no EOC/midwifery training*)	6
		Others (Specify)_____	9
12	Symptoms and signs presenting at the time of admission ***(circle all that apply)***	Fluid leaking from vagina	A
		Painful Contraction	B
		Vaginal bleeding	C
		Convulsion	D
		Oedema of leg	E
		Protein in urine	F
		Multiple pregnancies	G
		Obstructed labour	H
		Hypertension	I
		Prolonged labour	J
		Cord prolapse	I
		Excessive or absent foetal movement	K
		Other*(specify)*_____	X
13	Diagnosis of the patient ***(previously diagnosed report/if referred)***	Premature rupture of membrane (PROM)	A
		Pre-term labour	B
		Pre-eclampsia/ Eclampsia	C
		Antepartum haemorrhage (APH)	D
		Known Rh Negative blood group	E
		Rh-iso immunization	F
		Foetal distress	G
		Obstructed labour	H
		Prolonged labour	I
		Malpresentation	J
		Multiple pregnancy	K
		Gestational diabetes GDM	L
		Cord prolapse	M
		Labour pain with term pregnancy	N

		Other(specify) _____	X

SECTION 1: INITIAL CLIENT ASSESSMENT

No	Questions and filters		Options/Code		Skip
			Yes	No	
100	Is this section observed?		1	2	Yes →102
101	*If No, write down the reason*				Skip to **Section 2**
101A	Who perform the initial assessment?	Specialist (consultant of obs & gynae)		1	Write down the code of HCP from provider list : ☐☐
		Medical officer		2	
		Nurse		3	
		Paramedic/ SACMO		4	
		Midwife		5	
		Untrained nurse (no EOC/midwifery training)		6	
		Others (Specify)_____		9	

Record whether the provider carried out the following steps and/or examinations:

(some of the following steps may be performed simultaneously or by more than one provider)

Introduction and History Taking

No	Questions and filters	Options/Codes		Skip
		Yes	No	
102	Greetings	1	2	
103	Encourages the women to have a support person present during labour and birth	1	2	
104	Asks woman (or support person) if she has any question	1	2	
105	Checks woman's health card/ ANC card	1	2	
106	Asks client			
	a. Age	1	2	

	b. Length of pregnancy	1	2	
	c. Parity/ Gravida	1	2	
107	Asks when did the pain start	1	2	
107A	Record the date when pain started ***(if provider did not ask, please collect it by asking client)***	□□-□□-□□□□ **D D M M Y Y Y Y**		
107B	Record the time when pain started ***(if provider did not ask, please collect it by asking client)***	□□:□□ h h m m		
107C	Ask if she has any medical problems?	1	2	2→108
107D	What is/ are the problems?			
	a) Diabetes	1	2	
	b) Hypertension	1	2	
	c) Asthma	1	2	
	d) Thyroid problem	1	2	
	e) Others _____	1	2	
108	Asks if she has any of following symptoms for **CURRENT PREGNANCY**			
	a. Vaginal bleeding	1	2	
	b. Fever	1	2	
	c. Severe headaches	1	2	
	d. blurred vision	1	2	
	e. Swollen face or hands	1	2	
	f. Convulsions	1	2	
	g. loss of consciousness	1	2	
	h. Severe difficulty breathing	1	2	
	i. Severe abdominal pain	1	2	
	j. Decrease or stop in fetal movement	1	2	
	k. If client is concerned about any other problem	1	2	
109	Client has previous pregnancy? ***(Observe, listen, or ask)***	1	2	2→111

110	Asks if she had any of following complication during **PREVIOUS PREGNANCIES**			
	a) Heavy bleeding during or after delivery	1	2	
	b) Anemia	1	2	
	c) High blood pressure	1	2	
	d) Convulsions	1	2	
	e) Multiple pregnancies	1	2	
	f) Prolonged labour	1	2	
	g) Obstructed labour	1	2	
	h) C- section	1	2	
	i) Assisted delivery (forceps, vacuum extraction)	1	2	
	j) Prior neonatal death (death of baby < 1 month)	1	2	
	k) Prior stillbirth	1	2	
	l) Prior abortion/ miscarriage	1	2	
	m) Other_____	1	2	
Examination of the pregnant woman				
111	a) **BEFORE** general examination Washes hands **appropriately (with soap & water or using alcohol hand rub)**	1	2	
112	Explains procedures before proceeding	1	2	
113	**Performs the following steps for general examination**			
	a) Takes temperature by thermometer	1	2	
	b) Counts pulse	1	2	
	c) Measured blood pressure	1	2	2→e
	d) Record the measured BP	1	2	2→e
	d.1.Systolic *(in mmHg)*	☐☐☐		
	d.2.Diastolic *(in mmHg)*	☐☐☐		
	e) Edema checked (pedal edema)	1	2	
	f) Jaundice checked	1	2	
	g) Anemia checked by checking eye/ tongue/ palm	1	2	
114	Asks/notes amount, colour of urine	1	2	

115	Blood sample taken	1	2	
116	Urine tested for presence of protein	1	2	
117	IV line was set on woman	1	2	
117A	Put urinary catheter	1	2	
117B	Asks the woman if fetus's movement is present	1	2	
117C	Asks the woman if multiple pregnancy is present	1	2	
118	**Abdominal examination** was performed	1	2	2→120
119	a) Previous scar	1	2	
	b) Fullness of urinary bladder	1	2	
	c) Checks fundal height with measuring tape	1	2	
	d) Contractions number /10 minute, duration, relaxation between contraction	1	2	
	e) Checks fetal presentation (Cephalic, breech, transverse, oblique) by palpation of abdomen	1	2	
	f) Checks fetal heart rate with stethoscope/Doppler	1	2	
120	**Vaginal examination** was performed	1	2	2→126
121	Washes hands **BEFORE** examination	1	2	
121A	Washes hand **appropriately (with soap & water or using alcohol hand rub)**	1	2	
122	Wears sterile gloves for vaginal examination	1	2	
123	Informs woman about procedure **BEFORE** examination	1	2	
123A	(*Observer*) Please check for the following things are visible or not:			
	a) Any visible foetal parts	1	2	
	b) Vaginal bleeding	1	2	
	c) Leaking amniotic fluid: clear/meconium stained/foul smelling	1	2	
123B	Findings of vaginal examination was documented	1	2	No→ 123D
123C	Check the documentation if following things are written			
	a) Perineum bulged or not	1	2	
	b) Cervical dilatation in centimeters	1	2	
	c) Effacement of cervix	1	2	

	d) Presenting part head/breech/shoulder		1	2	
	e) Membrane intact or ruptured		1	2	
	f) Condition of membrane		1	2	
	g) Station of head		1	2	
	h) Feel for cord: felt/pulsating		1	2	
123D	Audio privacy well maintained during examination /separate room		1	2	
123E	Visual Privacy well maintained during examination / presence of curtain at least		1	2	
124	Informs the woman about findings **AFTER** examination		1	2	
125	Washes hands <u>appropriately</u> **AFTER** examination		1	2	
125A	Sent patient to do USG of lower abdomen		1	2	
126	Plan for delivery is discussed with the woman (***NVD or Assisted vaginal delivery or CS)***		1	2	
126A	Asks if patient's relatives have arranged any blood donor		1	2	
126B	Diagnosis of the patient ***(history and examination)*** ***(multiple answer)***	Pre-term labour (24-37 weeks of GA)		A	
		Premature rupture of membrane (PROM)		B	
		Pre-eclampsia/ Eclampsia		C	
		Obstructed labour		D	
		Antepartum haemorrhage (APH)		E	
		Rh-iso immunization		F	
		Foetal distress		G	
		Multiple pregnancy		H	
		Gestational diabetes (GDM)		I	
		Other(specify)_____ _		X	
126C	Referral done after initial assessment		1	2	**If yes→** must fill the **section 7**
127	Was this woman referred for a C- section		1	2	No→129
128	Cause of referral (multiple answer is possible)	Obstructed labor		A	
		Pre- eclampsia/ Eclampsia		B	

		Placental praevia	C	
		Previous c- section scar	D	
		Fetal distress	E	
		Cord prolapsed	F	
		Maternal distress	G	
		Prolonged labor	H	
		Malposition (breech)	I	
		Other (specify): _____	Y	
129	Did the health worker start a partograph?	1	2	
*Now based on your opinion circle the **best choice** for **QUESTION 130-133***				
130	How was the initial reception of the health worker (HW) to woman	Always welcoming	1	
		Sometimes welcoming	2	
		Often unfriendly	3	
131	How was overall communication between HW and woman	Courteous	1	
		Rushed	2	
		Harsh	3	
132	How did woman feel talking to the health worker?	Happy	1	
		Indifferent	2	
		Timid/scared	3	
133	Was woman‘s privacy ensured/maintained during interaction with the HW?	Always	1	
		Sometimes	2	
		Never	3	
End of section 1; Please go to section 2				

SECTION 2: INTERMITTENT OBSERVATION OF FIRST STAGE OF LABOR

No	Questions and filters	Options and coding		Skip
		Yes	No	
200	Was this section observed?	1	2	Yes →202

201	*If No, mention the reason*		Skip to **Section 3**
201 A	If woman transferred to labour room for the first time, then record the date when she was entered in labour room	☐☐-☐☐-☐☐☐☐ D D M M Y Y Y Y	
201 B	If woman transferred to labour room for the first time, then record the time when she was entered in labour room *(24 hour)*	☐☐:☐☐ h h m m	
201 C	Total duration of labour pain ***(ensure it by asking provider/ client/ checking previous section)***	☐☐ hour	

201 D	Who is the main care provider in this stage?	Specialist (consultant of obs& gynae)	1	Write down the code of HCP from provider list : ☐☐
		Medical officer	2	
		Nurse	3	
		Paramedic/ SACMO	4	
		Midwife	5	
		Untrained nurse (no EOC/midwifery training)	6	
		Others (Specify)_____	9	

General observation of labour room or ward or area

202	How is the layout of the labour ward?	Separate room for each patient	1	
		Each patient's bed is partitioned	2	
		Open with no privacy	3	
203	How would you describe the patient load in the labour room?	All beds filled and some on the floor	1	
		All beds filled but nobody on floor	2	
		Some beds are filled, not all	3	
		Almost empty	4	

204	How many beds are in the labour ward?		☐☐	
205	How many staff are on duty?		☐☐	
206	Clean surface / bed for delivery available?	1	2	
207	Light and ventilation in the room adequate?	1	2	

Record whether the provider carried out the following steps and/or examinations:

(some of the following steps may be performed simultaneously or by more than one provider)

Progress of Labour				
No	**Questions and filters**	**Options and coding**		**Skip**
		Yes	**No** **Don't Know(DK)**	
207 A	Asked when labour pain started	1	2	
207 B	Record the date when pain started ***(if it was written in previous section, please check and write the exact date)***	☐☐-☐☐-☐☐☐☐ **D D M M Y Y Y Y**		
207 C	Record the time when pain started **(if it was written in previous section, please check and write the exact time)**	☐☐:☐☐ **h h m m**		
207 D	Total duration of labour pain ***(ensure it by asking provider/ client/ checking previous section)***	☐☐ hour		
208	Explains what will happen during labour	1	2	
209	Encourages to consume fluid/food during labour	1	2	
209 A	Restricts woman to take any food or fluid in labor	1	2	
209 B	Encourages woman to empty her urinary bladder frequently	1	2	
210	Encourages/assists woman to ambulate, adopt different position during labour	1	2	
210 A	Tells woman that episiotomy may be needed	1	2	
210 B	Explains woman why episiotomy would be needed	1	2	
210 C	Praises, encourages and reassures her	1	2	
210 D	Gives her information on the process and progress of her labour	1	2	
210E	Health provider always listens to woman and be sensitive to woman's feelings	1	2	
211	Plan for delivery discussed with mother	1	2	

211 A	Plan for delivery discussed with family members/ relatives		1	2	
211 B	Ask mother/ family members about her/their preferred mode of delivery		1	2	
212	Is a support person present at any point during labor?		1	2	
212 A	Arranges seating for the companion next to woman		1	2	
212 B	Encourages companion to give adequate support to woman during labour and childbirth		1	2	
212 C	Encourages companion to massage woman's back or hold her hand and sponge her face between contractions		1	2	
212 D	Encourages to breathe out more slowly than usual and relax with each expiration		1	2	
212E	Tells woman that provider is going to conduct the labour		1	2	
212F	Encourages warm bath or shower		1	2	
212 G	Encourage to provide heat and cold(heat on lower back and cold washcloth on forehead)		1	2	
212 H	Adequate audio privacy maintained (separate room) during labour		1	2	
212I	Adequate visual privacy maintained/ curtain present at least during labour		1	2	
213	Partograph started to monitor progress of labour		1	2	No/DK →220
214	Action line plotted		1	2	No/DK →220
215	Action line on partograph reached		1	2	No/DK →220
216	*<u>Record time</u>, when action line was reached in partograph <u>(Record in 24 hours)</u>*		□□:□□ **h h m m**		
217	Action line reached→Any definitive action taken?		1	2	No/DK →220
218	*<u>Record time</u>, when definitive action was taken <u>(Record in 24 hours)</u>*		□□:□□ **h h m m**		
219	What definitive action was taken:	Consulted with senior doctor of same facility		A	
		Referred to other facility		B	

		Prepared for Assisted delivery	C	
		Prepared for C-section	D	
		Others (specify) _____	Y	

Examination & Procedures

No	Questions and filters		Options and coding		Skip
			Yes	No	
220	IV line was set on woman/ if set up earlier, then maintain it		1	2	
221	IV fluid started/ running if previously started		1	2	
221 A	Check woman's BP		1	2	
221 B	Record the measured BP				
	221B.1.Systolic *(in mmHg)*		☐☐☐		
	221B.2.Diastolic *(in mmHg)*		☐☐☐		
222	Vaginal examination was done in the labour ward		1	2	No→231
223	Wash hand <u>appropriately</u> **BEFORE** any examination		1	2	
224	Wears sterile surgical gloves		1	2	
225	Explains procedures before proceeding		1	2	
226	How often was she examined in the labor ward?	Half-hourly		1	
		Hourly		2	
		2-4hourly		3	
		more than 4 hourly		4	
227	How often were partographs filled after examination?	Never		1	
		Sometimes		2	
		After each examination		3	
228	Followings were plotted after vaginal examination				
	a. Colour of amniotic fluid		1	2	
	b. Moulding		1	2	
	c. Cervical dilatation		1	2	
	d. Head descent		1	2	

229	Privacy maintained during examination?		1	2	
230 A	Followings were plotted after vaginal examination				
	a. Colour of amniotic fluid		1	2	
	b. Moulding		1	2	
	c. Cervical dilatation		1	2	
	d. Head descent		1	2	
230	Who did the examination? *(Circle the highest ranked)*	Specialist (consultant of obst. & gynecology)		1	Write down the code of HCP from provider list : ☐☐
		Medical officer		2	
		Nurse		3	
		Paramedic/ SACMO		4	
		Midwife		5	
		Untrained nurse (no EOC/midwifery training)		6	
		Others (Specify)_____		9	
230 A	Gives enema		1	2	
231	Augments labor with oxytocin		1	2	No→ 233
232	Oxytocin administered intravenously (IV)		1	2	
233	Performs artificial rupture of membrane		1	2	
233 A	Administrations of drug for pain relief?		1	2	No→234
233 B	What drug was given?				

233 B	a. Name: _____	b. Dose: ☐☐☐☐	c. Unit: _____	d. Route:	
				IV	1
				IM	2
				other	3

234	Administers antibiotics		1	2	No→237
235	Why were antibiotics administered?	Treatment for chorio-amnionitis		1	
		Management of pre-labor rupture of membranes		2	
		Obstructed labour		3	
		Preparation for C-section		4	
		Routine/prophylactic		5	

		Others (specify) _____		7	
236	Which antibiotic was administered? *(Circle all that apply)*	Penicillin		A	
		Amoxicillin		B	
		Amoxicillin+ clavulinic acid		C	
		Ampicillin		D	
		Ceftriaxone		E	
		Cephradin		F	
		Metronidazole		G	
		Cephalosporin		H	
		Other _____		Y	
		Don't know		Z	
237	Attitude of health workers when woman is in pain	Caring & supportive		1	
		Indifferent		2	
		Abusive (verbal and physical)		3	
238	Did woman request for anything and not given?		1	2	No→ 240
239	Was woman told respectfully why request denied?		1	2	
240	Did woman have an IV-line access?		1	2	
241	Was this woman referred for a C- section		1	2	No→ 243
242	Cause of referral (multiple answer is possible)	Obstructed labor		A	
		Pre- eclampsia/ Eclampsia		B	
		Placental praevia		C	
		Previous c- section scar		D	
		Fetal distress		E	
		Cord prolapsed		F	
		Maternal distress		G	
		Prolonged labor		H	
		Malposition (breech)		I	

		Other (specify): _____		Y	
243	Has the woman completed the first stage of labor?		1	2	Yes→ Section 3
End of Section 2; Please go to section 3					

SECTION 3: CONTINUOUS OBSERVATION OF SECOND & THIRD STAGE OF LABOR

No	**Questions and filters**		**Options and coding**		**Skip**
			Yes	**No**	
300	Was this section observed?		1	2	Yes→302
301	*If No, mention the reason*				Skip to **Section 4**
301 A	Who is the main care provider in this stage? *(if more than one provider, document the highest ranking)*	Specialist (consultant of obst. & gynecology)	1		Write down the code of HCP from provider list : ☐☐
		Medical officer	2		
		Nurse	3		
		Paramedic/ SACMO	4		
		Midwife	5		
		Untrained nurse (no EOC/midwifery training)	6		
		Others (Specify)_____	9		
Record whether the provider carried out the following steps and/or examinations: *(some of the following steps may be performed simultaneously or by more than one provider)*					
Preparation at Delivery ward or room or area					
Observe the area and circle the appropriate answer for following items if available					
302	How is the layout of the delivery area?	Separate room for each client	1		
		Separate bed for each client; screened partition	2		
		Many patients to a room, no privacy	3		
303		Clean	1		

	How is cleanliness of delivery area?	Unclean		2	
304	Delivery bed		1	2	
305	Timer (clock or watch with seconds hand)		1	2	
306	Wall thermometer		1	2	
307	Wooden box/staircase beside the delivery bed		1	2	
308	OT Light		1	2	
309	Weight machine for baby		1	2	
310	Sterile gloves		1	2	
311	Catheter for woman		1	2	
312	Two cloths/blankets (1 for drying, 1 for wrapping)		1	2	
313	Cap/hat for the newborn		1	2	
314	Is there a delivery tray?		1	2	No → 316
315	List the contents of the delivery tray (circle all that applied)				
	a) Suture and needle		1	2	
	b) Cord clamp		1	2	
	c) Clean sterile gauze pack		1	2	
	d) Sharp scissors		1	2	
	e) Oxytocin		1	2	
316	Is there a newborn resuscitation area?		1	2	No → 318
317	List the items in the resuscitation area (circle all that applied)				
	a. Ambu bag		1	2	
	b. Self-inflating ventilation bag (250 or 500 mL)		1	2	
	c. Newborn face mask size 0		1	2	
	d. Newborn face mask size 1		1	2	
	e. Suction bulb/ penguin sucker		1	2	
	f. Suction machine		1	2	
	g. Radiant warmer		1	2	

	h. Bulb syringe for aspiration of fluids		1	2	
	i. Oxygen cylinder with oxygen		1	2	
317A	How are the instruments/ equipment sterilized? ***(ask provider)***	Autoclaving		1	
		Boiling		2	
		Chemical sterilization		3	
		Others (specify)_____		9	
Preparation for Delivery					
318	Puts on clean protective clothing in preparation for birth ***(mackintosh, goggles, gown or apron)***		1	2	
319	Washes hands <u>appropriately</u> before any examination		1	2	No→ 321
320	Method of drying hands	With clean regular towels		1	
		Disposable towels		2	
		Air dry		3	
		Didn't dry hands		4	
		Others (specify) _____		7	
320A	Perineal shaving was done		1	2	
321	Checks delivery trolley/instrument for functioning status		1	2	
322	Checks resuscitation equipment for functioning status		1	2	
323	Drapes woman <u>appropriately</u> for delivery		1	2	
324	Wears sterile surgical gloves *<u>(yes if no contamination)</u>*		1	2	
325	Puts on <u>two pairs</u> of sterile gloves on both hands		1	2	
326	Woman asked for her preferred delivery position		1	2	
327	Clean vulva/perineum with antiseptic solution		1	2	
328	Epidural given for the delivery		1	2	
329	Performs episiotomy		1	2	No→331
330	Mentions to mother why episiotomy is performed		1	2	
330A	Asks consent from mother to perform episiotomy		1	2	
331	Presentation of baby	Cephalic (head first)		1	
		Limb first		2	

		Buttock first	3	
		Others (specify)_____	7	
Delivery & Uterotonic				
332	Who conducted the delivery? *(if more than one provider, document the highest ranking)*	Specialist (consultant of obst. & gynecology)	1	Write down the code of HCP from provider list : ☐☐
		Medical officer	2	
		Nurse	3	
		Paramedic/ SACMO	4	
		Midwife	5	
		Untrained nurse (no EOC/midwifery training)	6	
		Others (Specify)_____	9	
333	Supports perineum as baby's head is delivered	1	2	
334	*Record time of the delivery of the baby* *(Record in 24 hour)*	☐☐:☐☐ h h m m		
335	Checks for another baby prior to giving the uterotonic	1	2	
336	2nd baby present? *(observer: circle 1 if multiple babies)*	1	2	
337	Administers uterotonic (oxytocin)?	1	2	No→344
338	*Record time when uterotonic is given* *(Record in 24 hour)*	☐☐:☐☐ h h m m		
339	Timing of administration of uterotonic	At delivery of anterior shoulder	1	
		Within 1 min of delivery of baby	2	
		Within 3 min of delivery of baby	3	
		More than 3 min after delivery of baby	4	
340	Which uterotonic given *(multiple answers possible)*	Oxytocin	A	
		Ergometrine	B	
		Syntometrine	C	
		Misoprostol	D	
341	*Record dose of uterotonic given (ask if necessary)*	**Uterotonic 1**	**Uterotonic 2**	
		☐☐☐	☐☐☐	

342	Units of medication ***(observer: if necessary, ask afterwards)***	IU	A	IU	A	
		Mg	B	Mg	B	
		mL	C	mL	C	
		Mcg	D	Mcg	D	
343	Route uterotonic given:	IM	A	IM	A	
		IV	B	IV	B	
		Oral	C	Oral	C	
		Per rectal	D	Per rectal	D	
344	*Record time the cord was clamped* *(Record in 24 hour)*			□□:□□ h h m m		
344A	Gives fundal pressure to hasten delivery of placenta			1	2	
345	Applies traction to cord & supra-pubic counter traction			1	2	
346	Uterine massage immediately after placenta delivery			1	2	
347	*Record time when placenta was delivered (24 hour)*			□□:□□ h h m m		
348	Assesses completeness of placenta and membranes			1	2	
349	Assesses for perineal and vaginal laceration			1	2	
350	*Observer: Did more than one HW assist with the birth?*			1	2	
351	*Observer: Did mother gave birth in lithotomy position?*			1	2	
351A	Did provider ask to keep any support person during delivery			1	2	
351B	Did woman request for support person during delivery?			1	2	
352	*Observer: Is a support person present at birth?*			1	2	No→ 354
353	Who was present?	Husband			1	
		Mother/ Mother in law			2	
		Other relative/ friend			3	
		Neighbour			4	
		Other (specify)_____			7	
354	Was privacy maintained during childbirth/ delivery?					
	a) Audio privacy maintained			1	2	

	b) Visual privacy maintained		1	2	
355	Was there any complication during delivery?		1	2	No→ 357
356	What complications? *(Multiple answers possible)*	Post-partum haemorrhage		A	
		Perineal tear		B	
		Obstetric Fistula		C	
		Ruptured uterus		D	
		Eclampsia/Pre-eclampsia		E	
		Obstructed labour		F	
		Prolong labour		G	
		Others (specify)_____		Y	
356A	Was there any complication present after delivery?		1	2	No→357
	What complications? *(Multiple answers*	Post-partum haemorrhage		A	
		Eclampsia		B	
		Perineal tear		C	
		Ruptured uterus		D	
		Retained placenta		E	
		Obstetric fistula		F	
		Others (specify)_____		Y	
357	Woman examined by a HW after the delivery	Within 15 minutes		1	
		Within 30 minutes		2	
		Not examined		3	No→359
358	Who examined?	Specialist (consultant of obst. & gynecology)		1	Write down the code of HCP from provider list : ☐☐
		Medical officer		2	
		Nurse		3	
		Paramedic/ SACMO		4	
		Midwife		5	
		Untrained nurse (no EOC/midwifery training)		6	
		Others (Specify)_____		9	

359	*Observer:* Did you see any HW filling out partograph after delivery with information that was supposed to be plotted during labour*? **(circle "8" if partograph was not initiated)***		1	2	8
359A	Delivery procedure written in case record forms		1	2	
359B	Check the delivery note whether following things are documented				
	359B .1 Health care provider name		1	2	
	359B .2 Date of delivery		1	2	
	359B .3 Time of delivery		1	2	
	359B .4 Prescribed treatment given		1	2	
	359B .5 Sex of the baby		1	2	
	359B .6 Weight of the baby		1	2	
359C	How was the behaviour of the HW all throughout the labour period? (multiple answer)	Harsh (slapped/ hit/ pinched at any time)		A	
		Shouted/ insulted/ threatened at any time		B	
		Polite/ assuring/ concerned/ cooperative during the period		C	
		Indifferent		D	
End of section 3; Please go to section 4					

SECTION 4: OBSERVATION OF CAESAREAN SECTION

No.	Questions and filters		Options and coding		Skip
			Yes	No	
400	Was this section observed?		1	2	Yes→402
401	*If No, mention the reason*				Skip to Section 5
Please circle the response that corresponds with your observation. Few questions have an option of "not applicable" or N/A. This should be used rarely, when the item cannot be done.					
Immediate care					
No.	**Questions and filters**		**Options and coding**		**Skip/ comment**
			Yes	**No**	
401A	Record date of **decision taking for C-section**	☐☐-☐☐-☐☐☐☐			
402	Record time of **decision taking for C- section** (24 hour)	☐☐:☐☐ **h h m m**			
402A		Hypertensive disorder		A	

	What was the indication of performing CS (*check the record/ case form or ask responsible provider in need)*	Mal presentation	B	
		Disorder of amniotic fluid	C	
		Antepartum haemorrhage including placenta praevia	D	
		Post-dated pregnancy	E	
		Prolong and obstructed labour	F	
		Maternal disorder related to pregnancy	G	
		Fetal distress	H	
		Previous Caesarean delivery	I	
		Generalised disease complicating pregnancy	J	
		Patient's choice	K	
		Other_____	X	
402B	Who mainly took the decision of doing CS? ***(if more than one provider, document the highest ranking)***	Specialist (consultant of obst. & gynecology)	1	Write down the code of HCP from provider list ☐☐
		Medical officer	2	
		Nurse	3	
		Paramedic/ SACMO	4	
		Midwife	5	
		Untrained nurse (no EOC/midwifery training)	6	
		Others (Specify)_____	9	
403	Decision of performing CS was informed to woman	1	2	
404	Reason of doing caesarean section was discussed with relatives/ family members	1	2	
404A	Who mainly inform the decision to mother/ family members of doing CS? ***(if more than one provider, document the highest ranking)***	Specialist (consultant of obst.& gynecology)	1	Write down the code of HCP from provider list ☐☐
		Medical officer	2	
		Nurse	3	
		Paramedic/ SACMO	4	
		Midwife	5	
		Untrained nurse (no EOC/midwifery training)	6	
		Others (Specify)_____	9	
405	Written consent was taken *(observer please check the case record form for written consent)*	1	2	No→500
406	Who gave written consent?	Women herself	1	
		Husband	2	
		Father/ mother	3	
		Father in law/ mother in law	4	
		Other (specify)_____	7	
End				

Observer's comments:

SECTION 5: ROBSON'S CLASSIFICATION

No	Women's profile according to Robson's Classification	Code
801	a) Nulliparous , single pregnancy , cephalic presentation, ≥ 37 weeks, spontaneous labour	1
	b) Nulliparous , single pregnancy , cephalic presentation, ≥ 37 weeks, either had induced labour or delivered by CS before labour	2
	c) Multiparous , single pregnancy , cephalic presentation, ≥ 37 weeks, spontaneous labour, without previous uterine scar	3
	d) Multiparous , single pregnancy , cephalic presentation, ≥ 37 weeks, without previous uterine scar, either had induced labour or delivered by CS before labour	4
	e) Multiparous , single pregnancy , cephalic presentation, ≥ 37 weeks, spontaneous labour, with at least one previous uterine scar	5
	f) Nulliparous with single breech presentation	6
	g) Multiparous with single breech presentation with previous uterine scar	7
	h) Women with multiple pregnancies, including women with uterine scar	8
	i) Single pregnancy with transverse or oblique lie including women with previous uterine scar	9
	j) Single pregnancy, cephalic, ≤36 weeks, including women with previous scar	10
	k) If it cannot be assessed, then code	99

Section 6: The observer OPTION[5] Measure- Score Sheet

Item 1: For the health issue being discussed, the clinician draws attention to or confirms that alternate treatment or management options exist or that the need for a decision exists. If the patient rather than the clinician draws attention to the availability of options, the clinician responds by agreeing that the option need deliberation. **0=No effort 1=Minimal effort 2=Moderate effort 3=Skilled effort 4=Exemplary effort**
Item 2: The clinician reassures the patient or re-affirms that the clinician will support the patient to become informed or deliberate about the options. if the patient states that they have sought or obtained information prior to the encounter, the clinician supports such deliberation process. **0=No effort 1=Minimal effort 2=Moderate effort 3=Skilled effort 4=Exemplary effort**
Item 3: The clinician gives information or checks understanding about the options that are considered reasonable (this can include taking no action), to support the patient in comparing alternatives. If the patient requests clarification, the clinician supports the process. **0=No effort 1=Minimal effort 2=Moderate effort 3=Skilled effort 4=Exemplary effort**
Item 4: The clinician makes an effort to elicit the patient's preferences in response to options that have been described. If the patient declares their preference(s), the clinician is supportive. **0=No effort 1=Minimal effort 2=Moderate effort 3=Skilled effort 4=Exemplary effort**
Item 5: The clinician makes an effort to integrate the patient's elicited preferences as decisions are made. If the patient indicates how best to integrate their preferences as decisions are made, the clinician makes an effort to do so. **0=No effort 1=Minimal effort 2=Moderate effort 3=Skilled effort 4=Exemplary effort**

Score	**Description**
0= No effort	Zero effort observed
1= Minimal effort	Effort to communicate could be implied or interrupted
2= Moderate effort	Basic phrases or sentences used
3 = Skilled effort	Substantive phrases or sentences used
4 = Exemplary effort	Clear, accurate communication methods used

Appendix 4: Interview guides (physicians and women who delivered by emergency and elective C-sections)

Guideline for Consultant/Physicians

After completing the face sheet:

Introduction

1) Can you tell me a bit about your background – where you come from, your education, designation, how long you've been in this hospital etc.?
2) Can you give me details of any special trainings you have had in your career?
3) How would you rate your post graduate training in obstetrics?

    Probing
    - NVD
    - C-section
    - Assisted delivery
    - Use of Partograph

4) Can you tell me about your obstetric history?

    Probing
    - Focus on modes of delivery and how those decisions were made?

Exploring C-section decision-making

5) What do you think are the factors responsible for increasing trend of C-section?

    Probing
    - **Provider perspective**
        - Financial benefit
        - Workload
        - Private practice
        - Fear of blame for any adverse effect due to NVD/assisted delivery
    - **Health systems factors**
        - Staffing
        - Training
        - Infrastructure
        - Referral
    - **Patient factors**
        - Pain
        - Convenience

6) How do you generally decide mode of delivery (NVD/ Assisted VD/ C-section)? What factors do you consider?
7) What are the protocols do you use while making decisions?
8) How do you communicate with patients while informing them about the decision regarding mode of delivery?

    Probing
    - What do you tell them?
    - What do patients or relatives ask?
    - What do you think are the facilitators and barriers of communication in such situations?

9) Have you received any specialized training for communication and particularly communication on mode of delivery?
10) What are challenges you face during decision-making? (Facility readiness, patient's personal preferences etc.)

Conclusion:

11) Is there anything more you would like to add?

Guideline for recently delivered (by C-section) mother

After completing the face sheet:

Introduction

1) Can you tell me a bit about your background – where you come from, your education etc.?
2) Can you tell me about your obstetric history?
3) Can you walk me through your current pregnancy? All service providers you met, ANC, any trial at home etc.

Probing:

- Where did you get ANC and other pregnancy related care?
- Why did you decide to come to this hospital? Can you explain what were the circumstances preceding arrival in this hospital?

4) What were your expectations for this pregnancy (in terms of mode of delivery); did you have prior knowledge on the pros and cons of NVD and C-sections
5) Can you explain what happened after you reached this hospital?
6) What has your experience been in this hospital?

- Privacy, respect and information provided by service providers
- Money spent

Exploring C-section decision-making

7) Who made the decision regarding C- Section?

Probing:

- You or others (doctor, midwives, family members etc.)?
- Can you explain the time when the decision was made? What did the physician say? What did you say? Did anyone else say anything (nurse, midwife, your family members, other hospital staff, others)?

8) (If you took the decision) what are the factors which influenced your decision regarding C-section?

Probing:

- Fear of pain
- Fear of episiotomy
- Safety issues
- Negative birth experience
- Specific belief
- Convenience
- Others

9) (If another person took the decision) why did they decide to go for a C-section?

Probing:

- Why did they decide so?
- Do you know the indication for which C-section was performed?

10) What was the process of decision-making?

Probing:

- Details provided and preference taken
- Involvement of family members

11) Can you explain the consenting process?

Probing:

- Did you sign the consent form or someone else?
- Did you fully understand what was in the consent form?
- Did anyone explain the pros and cons of the options you had?
- Did you have any questions for them? Were they answered?

Conclusion:

12) Is there anything more you would like to add?